CHAPTER THREE

Prosperity and Depression

The period between the First and Second World Wars saw many changes in agriculture. The pendulum pattern begins to emerge – after the disruptive years of the Great War, the '20s was a decade of optimism until the severe drought of 1929. Suddenly farmers found themselves in an increasingly difficult position, facing bad seasons coupled with low prices during the Depression of the 1930s. Farming is always subject to unpredictable weather and fickle market demands. A few good seasons and top prices can easily swing to a drought and poor prices before returning to an excellent year. Seasons in which everything else goes right may be spoilt when the bottom drops out of the market. The activities of the Agricultural Bureau reflect the changing fortunes of its members as they swing back and forth between prosperity and ruin.

After the First World War there was a renewal of enthusiasm in the Agricultural Bureau, and particular interest was paid to regional conferences. During 1923, 12 conferences were held, an increase of nine over the previous year. The Southern Branches reinstated their conference in September 1919 and a new one was convened at Minnipa on 16-17 October that year.

> Hotel accommodation is non-existent, and delegates, who in some instances travelled more than 150 miles, cheerfully shouldered their blankets and "billies". They slept in the newly erected barn on the Government Experimental Farm, or under the open sky, on bags of cocky chaff. They came from Yaninee, Colton, Green Patch, Minnipa, Petina, Talia, Mount Hope, Koppio, Edillilie, Yeelanna, and Wudinna, by train, trap, horseback, and motor, and their unanimous decision to "come again next year" best expresses their satisfaction. About 100 delegates attended, a figure that would have been considerably augmented but for the absence of any train from Thevenard to Minnipa and the prevalence of influenza. (*JASA*, November 1919, p. 323.)

Several guests came in their official capacities – Mr C. Tuckwell (Vice-Chairman Advisory Board of Agriculture), Prof. Perkins (Director of Agricuture), Mr George Quinn (Horticultural Instructor), Mr D. F. Laurie (Poultry Expert), Mr W. J. Spafford (Superintendent of Experimental Work) and Mr H. J. Finnis (Acting Secretary of the Advisory Board of Agriculture).

The first paper of the conference was read by Mr E. M. Sage of the Green Patch Branch (and the first life member of the Agricultural Bureau). His main concern was the lack of adequate marketing facilities on Eyre Peninsula. Cattle breeders could not keep in touch with the Adelaide market, and pigs were virtually valueless. He suggested a bacon factory and freezing works at Port Lincoln would greatly improve their situation. The delegates present agreed with his solution, and some went even further, claiming that the Government should run a steamship line connecting Eyre Peninsula with Adelaide.

This was followed by a paper on *Receiving Commodities and Marketing Produce* by Mr J. J. Cronin (Wudinna Branch) and one on the advantages of regular sheep dipping by Mr P. G. Thompson (Talia Branch). Mr L. J. Cook, Manager of the Government Experimental Farm at Minnipa, then addressed the assembly on *Clearing Local Scrub Country*. Since they must deal with the tallest mallee in the State (up to 40-50 feet high) plus the native pine *(Callitris purpingus)* and the scrub oak *(Casuarina glauca)*, special techniques were needed. On the Experimental Farm they had used the "forest devil", tractor with a direct pull, and tractor acting on a winch.

A discussion of the Wheat Pool Scheme was initiated by Mr G. A. Vigar (Mount Hope Branch)

who believed this method of marketing was advantageous to the wheat grower. After much debate a resolution was passed, "That this conference urges upon the Advisory Board to recommend to the Government that the guarantee of 5s per bushel should, at an early date, be extended to cover the 1920 and 1921 harvests". (*JASA*, November 1919, p. 326.)

The last paper of the day came from Mr P. P. Kenny of the Colton Branch. He dealt with the settlement of returned soldiers on the land, concentrating on the areas along the Murray and on Eyre Peninsula. The general feeling at the conference was that "The Government should clear a portion of each farm, supply water and house, and ring fence the cleared portion of the holding, as an inducement to returned soldiers to settle on Eyre Peninsula". (*JASA*, November 1919, p. 326.)

The next day began with a tour of inspection of the Experimental Farm. In the afternoon a "Free Parliament" allowed the discussion of all sorts of questions relating to the development of Eyre Peninsula. This very successful conference closed with a lecture illustrated with lantern slides in the evening. Mr D. F. Laurie described the various breeds of poultry and the general care required to get good results from them.

During the first year following the declaration of peace, the resettlement of returned soldiers was a major force in South Australia's rural history. In May 1920, the following report was supplied by the Premier, Hon. H. N. Barwell, in his policy speech at Gladstone.

> LAND SETTLEMENT. – The activities of the Lands Department were at present principally directed towards the settlement of the discharged soldiers. The Government recognised that they had a big problem to solve in regard to the mallee lands east of Tailem Bend and south of the River Murray, and also on Eyre's Peninsula and the West Coast. On the West Coast the principal difficulty was the absence of permanent water supply. Concessions had been made to the settlers who had to pay railage on water. With a view to meeting the problem of the successful settlement of the mallee lands east of the Murray, the Railways Standing Committee was preparing a report. The Loans for Fencing Act passed last session was now in operation, and would be liberally administered by the Department of Lands. The settlers could now obtain advances for purchase of stock and general improvements under the Advances to Settlers Act, and if it were found that the provisions of that Act would not enable sufficient assistance to be given, the Government would introduce fresh legislation. The Government had under consideration the appointment of an officer of the Department of Agriculture especially to devote himself to the study of mallee lands, and who will be constantly moving amongst the settlers, giving them advice and assistance.
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> SOLDIER SETTLEMENT. – The Discharged Soldiers Act of 1919 was working satisfactorily, and the congestion in Land Board work had now been almost overcome. Since January 1st, 249 [blocks] had been purchased. Up to March 31st the total area of land purchased for soldiers was 516,189 acres, at a total cost of £1,792,321, and in addition about £500,000 had been expended in preparing land in irrigation areas on the River Murray. Up to date 1,068 soldiers had been settled, and 432 were in training at Government farms or privately. Under the training scheme 360 men had been placed with farmers, fruitgrowers, and others, and reports received from the employers were most gratifying. The work of preparing land for soldiers in the valley of the Murray was proceeding with the greatest possible dispatch. The Government had recently bought 12,000 acres of Wellington Station. That purchase would facilitate dealing with Jervois Swamp. There were 900 men (many of them returned soldiers) employed in the Berri-Cobdogla areas up-river, and from 30,000 acres to 40,000 acres would eventually be under irrigation in this locality. The Government recently purchased block E at Renmark, and it would shortly be offered for soldier settlement. In connection with soldiers' homes, the board had already dealt with 6,767 applications, and had actually authorised advances to provide homes for 4,174 returned soldiers and widows at a total cost of £2,445,139. Every possible effort was being made by the State Bank trustees to expedite this work. (*JASA*, June 1920, p. 933.)

With so much new land being taken up, the question of how best to clear scrub was frequently discussed. One of the problems faced by many settlers was the regrowth of mallee scrub. There was a great need for some means of destroying mallee shoots, and to this end a trial of mallee shoot scorchers was arranged by the Agricultural Bureau at Lameroo on 17 February 1920. The Minister of Agriculture (now the Hon. W. H. Harvey) accompanied Prof. Perkins (Director of Agriculture), Mr W. J. Spafford (Superintendent of Experimental Work), Mr W. L. Summers (Secretary

to Minister) and Mr H. A. Finnis (Acting Secretary to ABA) to observe the trials. £100 was offered for a machine capable of doing the job, but the judges – Mr A. J. A. Koch (Lameroo), Mr W. J. Tyler (Wilkawatt) and Mr J. L. Williams (farm mechanic, Roseworthy College) were not satisfied by what they saw. In fact, of the three machines entered in the competition, one was withdrawn and another could not provide a practical demonstration. Only the machine manufactured by Mr H. Kennett of Kadina was really tested and proved to be inadequate. Farmers were still faced with their initial problem and little closer to arriving at a solution.

Since building materials were still scarce, the Soldier Settlers were provided with specific allowances of timber supplies. They could have either 400 posts at 4d each or 300 posts at that price and 50 rails at 1s 6d each. There was also provision for longer rails to be obtained for 2s 3d each. This was considered sufficient to start a small block.

At this time, there was also a lot of discussion at Bureau meetings about water supplies, essential if stock was to be kept. Reinforced concrete was frequently recommended as a cheap and effective material for building tanks. Dams were also popular in suitable situations. Mr T. A. Stead read a paper on this subject before the Wirrabara Branch:

> After the site of the dam had been selected a number of trial holes should be put down to test the holding quality of the subsoil. When the excavating was being done the sides and ends of the dam should not be made too steep, in order to make the work as light as possible for the horses. By making the dam a good depth the evaporation would be reduced to a minimum. To be worked to the best advantage the dam should be three times longer one way than the other, for it could then be ploughed lengthways and scooped across. To prevent the water from overflowing he recommended making the banks somewhat higher than the actual water level. The outlet should be in such a position that it would take the surplus water away as fast as it flowed into the dam. A good plan was to sink a catch hole about a chain away from the mouth and place a few loads of large stones between it and the dam. That would prevent the silt from washing into the dam. The speaker thought it was better to erect a windmill than let the stock go down to the dam to the water. There was no doubt that bullocks were the best team for dam sinking, but failing those he suggested using horses in teams of four abreast. A single furrow plough was the best implement, but it should be very strongly constructed to stand the strain of being sunk a good depth into the ground. (*JASA*, September 1920, p. 164.)

The process of dam sinking has changed dramatically over the years, especially since the introduction of machines such as the bulldozer.

Agricultural Bureau members were keen to share their knowledge with the new soldier settlers. They had learnt some tough lessons from their own experiences, and saw no reason for them to be repeated by their new neighbours. Papers read at meetings during this period offered useful practical advice. As far back as 1916 Messrs F. Tregenza and G. H. Wall of the Coonalpyn

Sinking a dam using Caterpillar tractors.

Branch had given a paper at the Annual Congress entitled *Essentials in the Successful Occupation of a Scrub Block*. They believed an intelligent man prepared to work hard, with £500 in the bank to back him up, could make a success of a scrub block in their district, provided the land was not too distant from the railway or river for transport. A good water supply was extremely important. The first few years would not show much profit, so the cheapest possible methods should be used for preparing the ground. Fallowing should not be neglected, however, as it was essential to conserve moisture in the soil, and was the only way to get the seedbed ready in time.

In the Eastern Mallee local farmers agreed that mixed farming was the best way to manage land in the area. The Nunkeri and Yurgo Branch met at Mr H. Sanders' homestead and their host read a paper he had prepared on the subject.

> The first point to be considered is that it takes at least five years to get the upper hand of the scrub and undergrowth which springs up when the mallee is cleared. After that the question arises, "What crops should one grow, and what class of stock is most likely to prove a source of profit". Let us consider cattle first. The high cost of fencing, combined with the exorbitant price of cattle, at once puts this line out of the question. Dairying, of course, cannot be considered in view of the scarcity of labor and the absence of irrigational facilities. There remain, therefore, sheep and pigs. Most of the occupied blocks have from 600 to 900 acres partly cleared, and the sheep-proofing of this area would be a big item, to say nothing of the cost of the sheep. The lot would run into about £400, but after the first outlay, there would not be much further expense. Sheep do well in this class of country, although in some years it would be necessary to hand feed during May, June and July; 75 bags of oats and a supply of cocky chaff would easily keep 100 sheep going over this period. The cost of feeding would be roughly £20, and interest on capital at 6 per cent, equal to £24. The return from 100 ewes should be about £150, and to this must be added the benefit derived by the land. Sheep work wonders in freeing the land of bushes, pig face, white and yellow daisies, and other plants that no other stock will touch. Probably this in itself would more than cover the cost of feeding and interest on outlay. With regard to pigs, the first cost would not be nearly so large as with sheep if they were treated as they should be. Twelve good sows and a boar could be bought for, say, £90, and cost of fencing would be about £50. Two barbed wires low down will keep a contented sow in a paddock. The sows can be run on stubbles and grass all the time they are not rearing pigs, and they will keep in better health and condition than if kept in a sty. Before farrowing the sows should be locked up and given plenty of good feed, wheat, barley, and pease with milk and pollard if available. This will give the young pigs a good start. If they are to show a profit they must not

Logging scrub with a Bulldog tractor at Wharminda, Eyre Peninsula

suffer a check at any time. In commencing operations in this class of country a good plan would be to grow two crops of wheat, then one of barley or oats, then one of pease. If a stubble burn can be obtained this will be half the battle. Either pigs or sheep will attend to the grain on the ground, very little indeed will be wasted. They will do best of all on the pease, and that crop seems to encourage the growth of grass. The nitrogen stored by the pease seems to be just what this class of land requires. (*JASA*, July 1918, p. 1005.)

Over on Eyre Peninsula, new land was opening up. Mr Forbes discussed what he considered to be the best method for clearing mallee scrub land at a meeting of the Yadnarie Branch. Mallee shoots were their biggest problem.

He favoured the log for dealing with the scrub, because to a certain extent it packed the timber together and allowed one to secure a better burn. It also pulled out more stumps and did not leave so many snags. Scrub should be logged as early in winter as possible, to allow the shoots to get a good start before the scrub was burnt, thus giving them their first severe check. Breaks should not be burnt, but the timber cleared back the required distance, as that ensured a good start for a body of fire. The fire frequently got out of control when burning breaks. A very hot day should be selected for the burn and a steady and fairly strong wind was most essential. He always lit the fire with the wind a little behind the blaze, as that caused the fire to "draw" and give it the desired sweep, which was the main thing in killing the shoots and getting a clean burn. Late wheats should be sown early in the season on new land, because under ordinary conditions it would produce a good stubble, and enable one to get a running burn. (*JASA*, June 1920, p. 970.)

It is easy to imagine that such fires could easily get out of control, burning far more than intended.

More information was provided on the subject of *Starting and Stocking a New Selection* by Mr T. Nottle at a meeting of the Yaninee Branch in July 1920.

Careful consideration should be given to position, drainage, and attractiveness, and an area of eight or 10 acres reserved for the homestead and its surrounding buildings. A team of six horses, plough of medium weight, harrows and drill would be required to work about 200 acres of newly cleared land. He favoured the purchase of large implements, with the object of being able to deal with larger areas of land as the work of clearing progressed. For the first few years he suggested cropping the land on five years' system of rotation – two crops of wheat, oats, grazing, and fallow. Recent years had proved the wisdom of conserving cocky chaff, yet there was no doubt that the harvester was a great labor saving machine, so that the choice of harvesting machinery rested entirely on the farmers. If more than one pair of hands was available for assisting in the work of the farm two cows could be kept, and under ordinary conditions they should be able to keep the household supplied with milk and butter, and help to pay the expenses in connection with the upkeep of the household. Poultry was another profitable side line, and he favoured a cross between a white leghorn and a black orpington as one that would serve the double purpose of supplying eggs and meat for the table. A few pigs could also be kept. As soon as circumstances permitted, the farmer should give his attention to the keeping of sheep, and if the system of cropping previously mentioned in the paper was carried out the household should be kept supplied with fresh meat all through the year. The laying out of a small fruit and vegetable garden was also well worth consideration. (*JASA*, September 1920, p. 171-2.)

At the 1920 Congress, Mr F. McMillan of the Taplan Branch read a very interesting paper, *Go on the Land, Digger*. It provides us with an insight into what the returned soldiers could expect if they took up this option.

A Rural Catechism

The conditions of living are another factor that needs to be considered. Will you be content to (in the case of single men) go out, and on your own do the work in the field and in the camp, having a minimum of social life and sport, and, in the case of the married man, see your wife carry on without numerous domestic conveniences in the home that she has been used to, and your children having to travel a long way to school, or the possibility of no school to attend? Are you prepared to spend your energy and capital, and at the end of 12 months when you balance, find that, through circumstances over which you have no control, your reward is nil? Are you prepared to go through it again, with possibly a like result? If you are, go on the land. If not, keep away from it, as it is more than likely that it is a phase that will have to be gone through. It is a case of carry on. Should you meet with a reverse and drop your bundle, unless you are financially strong you will have

a liability to carry that will require a lot of mopping up. Do not be misled by thinking that farming is not a skilled calling, requiring and lending itself, as it does, to the expenditure of as much brain power as any other profession in order that you may get the best result from your farm.

Having decided to go on the land, you must qualify for your certificate by training at one of the Government training farms or with an approved farmer. I suggest going to an approved farmer for your experience, and in the district in which you intend to settle, as the methods of farming and implements used vary considerably throughout the State. With a farmer you have greater scope, and will find a better field for your initiative. Learn to know your work and the reason for doing it. Discuss it with the farmer; if he is not communicative find one that is, and do not be afraid to advance any theory that you have on the subject. If there is a Branch of the Agricultural Bureau in the neighborhood, become an active member, and you will find the time very profitably spent. Do not be over anxious to start on your own account, as it is more profitable to gain your experience than to pay for it. The time spent in gaining experience is never wasted, and you will realise the benefit of a sound training in establishing your farm.

Making a Selection

Presuming you have obtained your certificate and are satisfied that you have sufficient knowledge to start a place of your own, and having determined that the work is congenial, and that you will adopt farming as your future calling, the selection and securing of your land is the next step. I will not go into particulars of land open to application, as you can get all that data, forms, etc., at the Soldier Settlement Office. But it is here that your experience is going to stand you in good stead. Having worked in the district in which you intend settling, your knowledge of land values and the fertility of the soil will be of material benefit to you in the choice of your selection. Should it be an unimproved scrub lease that you are taking up, then the following may be of use to you:– You will need to consider the distance from nearest railhead or port, quality of land, and average rainfall. Say you select in fairly heavy timber, with approximately an average rainfall of 11 in. Get on to it in the winter, do your mullenising in good time, preferably before the harvest; then, should you choose, you would be able to work through the harvest, thus adding to your knowledge and conserving your capital. Do not miss an opportunity to run your burn, as it is most important to run your fire and not take the risk of having rain over it, as so often happens. My advice is mullenise as much land as you will require for cropping for the first four years, then, if possible, fire all your green scrub at the same time as you run your burn. This burnt land will grow good feed and as the shoots grow so you can cut them and stack them around the standing timber. It perhaps means a little more work, but not nearly such hard work, and the difference in land so cleared and land mullenised is more than worth the extra trouble. This applies to timber that is too heavy to roll. This practice is gaining favour in our district, and we have come to the conclusion that mullenised land is a dirty job compared to the fire-cleaned land. Be careful to leave a good area of standing scrub around your homestead and farm buildings, and shade and breaks are a valuable asset in the paddocks. Mallee, sandalwood, and belar posts are not a success, pine being the most suitable. (*JASA*, October 1920, pp. 226-8.)

Mechanisation was gradually making its way into farming, even though there was very little money around and machinery was difficult to procure. Tractor trials were held at Turretfield Experimental Farm throughout July 1920. Two of the most popular models were tested, the "Fordson" by Duncan and Fraser Ltd, and "Baite's Steel Mule" made by Clutterbuck Bros. Both were used to pull ploughs, and the general opinion was that tractors definitely had a place in the agricultural work of South Australia.

Without the burden of war over them, people everywhere threw themselves into life with new vigour, and the members of the Agricultural Bureau were no different. More adventurous activities were arranged for Bureau meetings, and new projects embarked upon.

The Riverton Women's Agricultural Bureau combined with the local Men's Bureau for a social on 30 July 1919. The subject of *After the War* was discussed by the Hon. W. Hannaford. Now was the time for South Australians to rebuild their State.

It was a busy year for the Mallala Branch which held its 21st birthday celebrations on 7 July 1920. A non-competitive tractor trial and demonstration of implements was held on Mr F. A. Konag's land. This was followed by a banquet at 5 o'clock. The distinguished guests included the Hon T. Pascoe and Prof. Perkins. In the evening a public social was held in the institute during which the Minister and Perkins addressed the crowd. Mr J. J. McCabe,

Homestead meeting – The Geranium Branch at Mallee Brae, c 1920.

the only original member on the roll, was presented with a certificate of life membership during the proceedings, and the evening finished with music and dancing.

Other branches implemented new ways of running meetings to encourage members' participation. The Naracoorte Bureau had a "Useful Hints" night on 11 December. All sorts of interesting information was offered, including the following:

> When digging post holes, especially in sticky soil, he advised mixing lime in some kerosine to make a thick whitewash and applying it to the spade. After being allowed to dry, it would be found that the spade would bring up the soil much better ... Mr G. Turnbull stated that a piece of wombat skin would make excellent bearings and washers for a binder. He advised members not to plough too deeply in light soil inclined to be wet. The seed would do better if only just covered. The Chairman (Mr F. A. Holmes) said that Bordeaux mixture would cure curl leaf on mulberry trees. He did not advise feeding calves with milk direct from the separator because they became blown, but if the froth was taken from the milk it would do them no harm. (*JASA*, February 1921, p. 650.)

The Morchard Bureau held an "Exhibit Night" in October 1921 to add some variety to their programme.

> Mr Kupke tabled excellent samples of figs that had been grown and dried on his farm. The same member also exhibited a number of sheepskin mats that had been scoured and tanned at a cost ranging from 7s 6d to 11s 6d each. Mr H. Toop was responsible for an interesting display of tools made from discarded parts of old machines and implements. Mr F. Seriven tabled a fowl trough constructed with petrol tins. Mr Lillicrapp showed a device for tallying sheep. (*JASA*, December 15, 1921, p. 442.)

As an entertaining way of discussing the pros and cons of new technology, some branches organised debates. The Rockwood Branch used the topic of hand-milking versus machine-milking in this way for an interesting and informative meeting.

> Mr E. Rogers opened the discussion in favour of the machines. He said there was no doubt that the mechanical milker saved a great deal of time and labour. One man could look after four machines, and in the 15 months that he had been working the machine he had never seen a bucketful of milk spilt, which was rather a common occurrence when the cows were milked by hand. The pigs and calves could be fed while the cows were being milked. In further supporting the advantages of the machines, Mr Meyer said the great success of the invention was due in no small way to the suction, which was an almost perfect imitation of the calf sucking its mother. If the yard was properly and conveniently laid out, one man could look after four machines. Most of the cows milked with the machine did not require stripping, and he was firmly convinced that any dairyman with more than 12 cows should install a machine. He also contended that the animals milked with the machine were more contented, and stayed in milk for a longer period than the cows milked by hand. From his experiences he would say that it cost 6d for fuel for each milking. Mr Carter had no hesitation in saying that the machines had been the salvation of the dairying industry in South Australia, chiefly because of the very great difficulty in securing suitable and constant labour for the dairy farms. He had been using the machines for 10 years, and had

never had a cow lose a quarter. Cleanliness was a most essential factor in the success of the machines, but that also applied to all operations connected with the handling of dairy produce. A plant could be installed for about £150, and 2s per day would cover all running expenses. Mr Dunn, in supporting hand milking, mentioned that he had noticed very dirty machines on some of the dairy farms, and he was also of the opinion that it was necessary to strip the cows after milking. He doubted whether one man could attend to four machines. Mr Simmons stated that he was not favourably impressed with the machines; the initial cost of the outfit was very high; and, as a rule, owners of high-class stock always milked their cows by hand. Mr Steed was of the opinion that only the dairyman with a herd of 20 cows or over required a machine, and he also contended that the cost of installation was too great. He did not think that a great deal of time was saved with the machines. The Chairman (Mr J. J. Bradford) declared the speakers who advocated the machines the winners of the debate. (*JASA*, March 15, 1922, p. 752.)

1920 also saw the end of the six-year Balaklava Wheat-growing Competition.

The Balaklava Wheat Crop Competition Shield won by Mr R S Goldney, 1920.

The competition was open to any person resident within a radius of 10 miles of Balaklava. Any kind of wheat might be grown, provided it was a good average milling variety. Each plot was required to be one-quarter of an acre in extent. The seed wheat for the first year's sowing had to be hand selected from a crop growing within a radius of 10 miles of Balaklava. That applied to the first year in which a grower competed, whether the first year of the competition or any subsequent year. After the first year the seed had to be hand selected from the quarter of an acre plot each year. However, a competitor might substitute a different variety of wheat in the fourth year, seed to be hand selected from a crop on competitor's farm or from one within 10 miles of Balaklava, which variety was to be continued with during the remainder of the competition. The competitor was at liberty to sow as much seed and apply as much manure, of any kind, per acre as he thought fit. No restrictions were made as to the method of cultivation, but artificial watering was not permitted. In judging, yield was the chief factor, subject, however, to the following conditions:– (a) The wheat was of good average milling quality. (b) It was reasonably plump, and in the opinion of the judge of average marketable sample. (c) The wheat was true to type. (*JASA*, August 1920, pp. 30-31.)

The silver shield was won by Mr R. S. Goldney who had obtained the highest number of points overall with "King's Red" wheat. The runner-up was Mr P. H. Roediger with crops of "King's White", followed by Mr H. C. McPharlin with crops of Gluyas.

The Murray Lands Branches held their first conference on 5 October 1920 at Karoonda. Previously the branches involved had taken part in the Pinnaroo Conference. Although they had much in common with the Pinnaroo farmers, there was great difficulty experienced in getting to the conference. It made more sense for the branches on the Paringa, Loxton and Waikerie railway lines to gather separately. The official guests attending were Mr C. J. Tuckwell (Chairman ABA), Mr W. J. Spafford (Superintendent of Experimental Work) and Mr H. J. Finnis (Acting Secretary of ABA).

The first paper was read by Mr E. L. Cowled of the Borrika Branch. He discussed *Sheep on a New Mallee Farm* urging settlers to pay attention to fencing and subdivision of the holding. He also advised sheep owners to procure good classes of sheep and warned against over-stocking. He

suggested Merinos as a breed well-suited to their conditions. Many subjects were discussed during a "Free Parliament" session before Mr Sanders of the Nunkeri and Yurgo Branch read his paper on working a new block in the Mallee (discussed above). The day closed with an address by Mr Spafford on the working of sandy soil.

The first Herd Testing Society was formed by the Murray Bridge Branch of the Agricultural Bureau towards the end of 1920, largely due to the efforts of Mr A. R. Hilton, the Branch Secretary. Sixteen dairy farmers joined the association, bringing with them 285 cows. Every cow in the herd was to be registered, whether or not in milk, and this would be taken into account when calculating the average milk and butter-fat output of the herd. It was hoped that by recording the milk yields of all cows that unprofitable animals would be discarded. In order to encourage such societies, the Government offered to bear half the expenses incurred up to £200 per annum. Cash prizes were also offered for annual competitions within societies. Other branches followed their initiative, and four more Herd Testing Societies were formed by the end of 1924.

River Murray Association	1 October 1920
Mt Gambier & District Association	1 August 1922
Glencoe Association	1 October 1923
Milang Association	1 May 1924
Narrung Association	1 October 1924

During the post-war period emphasis was placed on rebuilding the Australian economy. Part of this was to improve the living standard of all Australians, and the rural population could benefit from this as much as city folk. The *Journal of Agriculture of South Australia* started running advertisements for electric power plants; discussions at branch meetings were often devoted to topics such as *The Telephone* and *How to make Rural Life More Attractive.*

The introduction of labour-saving devices was recommended by Mr L. S. Moore at a meeting of the Mintaro Branch.

> With the aid of a tractor, the work could be performed in less time and the need for attending to the horses at early and late hours would be eliminated. Again the use of motor power for such work as raising water, the laying on of a water supply to the homestead, and the installation of electricity for lighting purposes and working the washing machine, etc., would make farm life considerably more comfortable and enjoyable. (*JASA*, September 1922, p. 172.)

He went on to suggest that the addition of a car and a telephone would greatly improve the lot of the farmer. Mr T. Cowley of the Elbow Hill Branch also saw the advantages of telephone communication. He suggested that wire fences could be used to connect farms with the exchange.

> One would prove the value of the telephone during the busy seasons of the year, especially during harvest time, when one found it necessary to obtain without loss of time new parts for the machines. The speaker believed that telephonic communication would add considerably to the social life of the country, and would help in making rural life more attractive. Perhaps the greatest advantage would be in times of sickness or accident, when one could get into quick communication with a medical practitioner. (*JASA*, May 1921, p. 878.)

The Mount Hope Branch at a Field Day on Fred Myer's property, c 1922. Back Row L-R: Messrs Bob Myers, Fred Myers, George Vigar, Henry Doudle, Tom Speed, Jim Doudle, Nelson Ness, Billie Mahoney, Bert Vigar, Harold Myers.
Seated L-R: Dudley (Mick) Doudle, Tommy Speed, Denny Speed, Arthur Vigar, Jackie Mahoney, Jack Winstanley.

Gradually these conveniences were introduced, but it was a long time before they were taken for granted as part of rural life.

The first Roseworthy Agricultural College Winter School was conducted in July 1921. Forty representatives of 39 branches took part in what proved to be a very successful venture. Classes on all branches of agriculture were incorporated into the fortnight's programme.

Monday, 18 July. – Opening addresses; wool-classing, Mr A. H. Codrington; principles of breeding, Mr W. J. Colebatch.

Tuesday, 19 July. – Soils, Mr R. C. Scott; budding and grafting, Mr D. G. Quinn; points of the horse, Mr F. E. Place; principles of breeding, Mr W. J. Colebatch.

Wednesday, 20 July. – Management of dairy cattle, Mr R. Baker; diseases of crops, Mr W. J. Spafford; grain grading and pickling, Mr R. C. Scott; diseases and parasites of poultry, Mr D. F. Laurie.

Thursday, 21 July. – Establishment and management of orchards, Mr D. G. Quinn; building construction, Mr J. Paull; milk testing and herd testing, Mr R. Baker; parturition, Mr F. E. Place.

Friday, 22 July. – Farm bookkeeping, Mr H. C. Pritchard; feeding of cattle, Mr R. Baker; pruning, Mr D. G. Quinn; dairying, Mr P. H. Suter.

Saturday, 23 July. – Field class, Mr W. J. Colebatch.

Monday, 25 July. – Manures and manuring, Mr W. J. Spafford; varieties of cereals, Mr A. J. Adams; parasites of farm animals, Mr F. E. Place.

Tuesday, 26 July. – Seed selection and plant breeding, Mr R. C. Scott; tractor demonstration; butter making, Mr R. Baker; fat lambs. Mr W. J. Colebatch.

Wednesday, 27 July. – Silos and silage, Mr R. Baker; chemistry of soils, fertilisers and waters, Mr E. G. Stephens; horseshoeing, Mr F. E. Place; pig breeding and feeding, Mr H. J. Apps.

Thursday, 28 July. – Examination of horses for soundness, Mr F. E. Place; sheep demonstration, Mr W. J. Colebatch; pig killing and bacon curing, Mr R. Baker; forage crops, Mr W. J. Spafford.

Friday, 29 July. – Diseases of fruit trees and vines, Mr D. G. Quinn; poultry farming, Mr D. F. Laurie; farm implements and machines, Mr H. R. Nourse; common diseases of livestock, Mr F. E. Place.

Saturday, 30 July. – College experiments, Mr W. J. Colebatch. (*JASA*, September 1921, p. 118.)

The first Winter School was such a success that it became an annual event for many years to come.

Farmers realised that a scientific approach to their work was bound to pay off. They needed the

The participants in the first Farmers' Winter School, Roseworthy Agricultural College, July 1921.

advice of agricultural scientists; the experimental work carried out by academics could, and should, be put to practical use for the producers' benefit. One way of obtaining this information was through the journals and books published by various Government Agricultural Departments and universities. In the early years of its existence, the South Australian Department of Agriculture had made its collection of publications from all over the world available for loan by members of the public. The Millicent Branch had established a library for members' use in 1894 and the Debating Club passed on its collection when the Agricultural Bureau formed there. In 1921 the Renmark Branch announced its desire to create a library of its own, and the Rockwood Branch suggested a circulating library for the use of all Agricultural Bureau Branches. Unfortunately, nothing seems

Delegates at the Longwood Conference, 1921.

to have come of Rockwood's good idea, and progressive farmers were obliged to buy their own publications, while others relied on the information to be found in the pages of the monthly *Journal of Agriculture of South Australia*.

The search for means of increasing production led to some interesting experiments. The Laura and Morchard Branches were attracted by methods of electrifying seed wheat. Mr H. A. Toop of the latter reported on this new work.

> Although only in its infancy, the experiment seemed to promise returns equal to that of superphosphate. It had, up to the present, only been used on a very few farms, but the results had been very much in its favour. Reports showed that it was a fairly simple process to treat the seed, a common medical battery being used to electrify the water in which the wheat was placed. The results proved a better and quicker germination, a stronger and healthier plant, and better grain; and also that the treatment could be applied with equal success on other seeds as well. (*JASA*, Sept 1921, p. 143.)

Unfortunately, the expected results did not eventuate and electrification was abandoned.

Some of the innovations of this time were to have more lasting effects. Mr Roy Currie of the Wasleys Branch recalls the period:

> Wheat over the years has been subjected to smut, as is barley, and this required the grain to be immersed in a solution of bluestone. This was done with part bags in drums. Later it was tipped out on cement floors and tipped over with shovels and wetted with a bluestone solution. It was an after tea job.
>
> Nicholas McCabe of Pinkerton Plains invented a perforated container and this was lowered into a huge wooden cask and bagged in butts at the side of the cask. This was widely used and we had one on our farm. Some of the family members still have a certificate from the Government for this achievement. One is still on display at the Mallala Museum.
>
> A farmer at a bureau meeting at Riverton, the late Mr Alf Hannaford, said he thought easier methods could be adopted. So he invented the first dry pickling machine turned by hand. Wheat was run from the winnower into this machine. Later Alf Hannaford invented a mobile grader and pickler. I can remember seeing the first machine and now it's used all over Australia. (Roy P. Currie, *Looking Back over the Years of the Wasleys Agricultural Bureau*, 20 January 1987.)

Cliff Currie (left) and his brother Roy in 1986.

Shearing in the '20s was a much less streamlined business than it is today. This description of the process was prepared by Mr H. W. Tremaine for the Smoky Bay Branch:

> sheep should be shorn in the spring, at the commencement of warm weather, but before the grass seeds began to drop. The shed should be free from draught, and provided with a boarded floor. For a small shed a couple of iron cases laid together would answer for each shearer. In the case of a farmer with large flocks of sheep, he advocated a well laid-out and permanent shed. In every shed, catching pens close to the board should be erected, so that no time would be wasted by the shearer in getting the sheep. A sufficient number of hands should be engaged, so that the shearers would have nothing to do but shear. The wool picking and clearing away should, if possible, be done by other hands. It was very often difficult to secure men to shear, and in order that that might be overcome, he suggested a system of co-operation among farmers. In any case, every sheep owner should, in case of emergency, be able to shear. Prior to the commencement of shearing, the main flock should be grazed in a paddock handy to the shed. The morning sheep (at least) should be penned under cover the previous night, so that the wool would be quite dry and ready for an early start. A good pair of shears, with the shoulder ground down and the edge finished off with an oilstone, was essential. The

shearer should be careful, and not make second cuts, but keep the shears well down on the sheep. The second cut was useless from a wool buyer's point of view, and in all probability would have a bad influence on the value of the clip. Stockholm tar should be kept handy to put on any cuts on the sheep. After each sheep had been shorn, the wool should be picked up, and the board swept, so as to prevent dirt and locks from getting into the fleece of the next sheep. As the animals were shorn, they should have their teeth examined, the loose ones extracted, and the toes cut to proper length. A learner should commence by taking off the bellies for a shearer, and gradually go a little further with the sheep, until he was able to take off the whole fleece. (*JASA*, September 1921, p. 161.)

These days, there is not enough time to pay so much attention to each individual sheep, and unions insist there are sufficient roustabouts to ensure the smooth running of the shed.

Shearing a sheep with hand blades. Pt Augusta.

"Downy Mildew" or "oidium" was a major problem for vinegrowers at this time. The Clare Branch heard a paper from Mr R. O. Knappstein on 19 August on the subject of combating this disease.

Some varieties are more subject to attack than others, and those vines which are most susceptible to black spot are also most prone to downy mildew. The disease, like many fungus diseases, depends on the weather conditions for its development. If the spring and summer are hot and dry, the chances are that the disease will not develop. But, on the other hand, if moist, sultry weather conditions prevail, then those growers who have neglected to spray will realise the damage and remarkable rapidity of the spread of the disease ... its presence can be detected by the oil spots or ... light-coloured patches on the leaves ... growers recommend the use of Bordeaux mixture to combat the disease. It is not so easily washed off the foliage as Burgundy mixture, and, therefore, retains its virtue as a fungoid preventive over a more lengthy period. The strength recommended is 10 lb bluestone to 50 gall of water, with enough lime added to make the mixture alkaline ... The style of pump to be used rests with the grower himself. If he requires a pump for spraying orchards as well as vineyards, he can use a hand or a motor power plant, but if the pump is intended for vineyard spraying only, a horse-drawn tractor spraying machine is generally used. The pump of this machine is worked off the axle of a wheel with an eccentric or crank. In the eastern States where only vines are sprayed, the horse-drawn tractor is in general use, and gives thorough satisfaction. These machines are capable of spraying large areas quickly, cheaply, and thoroughly. The rear of the machine is equipped with horizontal arms, which reach right over the vines on each side of the machine, and on these arms droppers are fastened, which hang vertically, and are adjustable to any desired height or width. Spray nozzles are fitted on these droppers and can be set to spray in any direction which the operator chooses. With some machines one row at a time can be sprayed, and with others two complete rows can be finished in the one operation. The spray nozzles should be so arranged that they point slightly downwards and backwards. The idea of spraying downward is because the disease always starts on the upper surface of the leaf, so we have to put the Bordeaux mixture on the top of the leaf to prevent the spores from developing. The first spraying for the seasons should be carried out when the young shoots

Mr L A Chapple, Champion Grape Vine Pruner (left) and Mr H von Bertouch, Champion Fruit Tree Pruner (right).

are about a foot long, or when it is possible to distinguish the young bunches. The second spraying is usually carried out about the flowering stage, and followed later on by another just before the grapes begin to colour. (*JASA*, October 1921, pp. 248-249.)

A series of pruning competitions were organised by the Agricultural Bureau on the River Murray Settlement in June 1921. Both fruit trees and grape vines were pruned in the competitions at Waikerie, Moorook, Berri and Renmark. The three best competitors from each branch took part in a Championship Competition at Berri on 14 June. The judges of this final contest, Messrs S.H. Levien of Renmark, and C. G. Savage of the Government Experimental Farm, looked for the selection and treatment of fruiting wood, shaping of the vine or tree, and clean cutting in all cases. They were also interested in the treatment of leaders in tree pruning, and the twisting of canes in sultana vines. Two classes were judged, fruit trees and vines.

The silver cups donated by Mr H .S Taylor of Renmark were won by Mr H. von Bertouch for the tree section and Mr L. A. Chapple in the vine section. Both gentlemen were from Berri.

A great deal of interest was shown in all the local competitions as well as the Championship. Pruning competitions became a regular feature of Agricultural Bureau life along the River Murray, and were soon introduced to other parts of the State.

Competitions became an increasingly important part of Bureau life during this period. The "Suntyne" company arranged a Combined Drill and Cultivator Competition through the Agricultural Bureau on Yorke Peninsula. Each crop entered was to be of 100 acres and contain no more than three varieties of wheat. The scale of points for judging was—

Apparent yield	65
Trueness to type and purity	5
Freedom from disease	10
Freedom from defects, evenness, condition and appearance	5
Cleanliness	15

Mr Greenslade of Urania won with a crop of Major wheat. The report published in the *Journal of Agriculture of South Australia* included two lists of wheat varieties suitable for different soils:

In typical South Australian calcareous conditions, i.e. limestone soils with comparatively low average annual rainfall (14 in to 18 in) the type of wheat giving best average returns consists of those varieties with tough, more or less willowy straws, and tough, shiny chaff, and where these conditions obtain, the following varieties should improve the yields:—

Caliph	Late Gluyas
Currawa	Leak's Rustproof
Sultan	Walker's Wonder
Felix	King's Red or King's White

In heavier textured soils not supplied with an excess of lime and having an average annual rainfall of 16 in to 20 in or more, the stiffer strawed, more flaggy wheats with softer chaff give better grain yields without the same tendency to lodge as happens with some of the above-mentioned varieties, and for these conditions the following varieties are recommended:–

Federation	Currawa
Onas	Yandilla King
Minister	Caliph
Major	

(*JASA*, December 1921, p. 402.)

In 1924 the Government, recognising the value of competitions, decided to subsidise wheat crop competitions. They agreed to help branches of the Agricultural Bureau secure suitable judges and pay rail fares for the judges to travel to and from the competitions. They would also allow a monetary grant of 10s per entry up to £25 per annum, provided the branch collected an equivalent amount. Although the competitions were organised by the Agricultural Bureau, all farmers were welcome to take part.

The first branch to accept this subsidy was Miltalie in the 1923/24 season. The competition was open to all wheatgrowers in the Franklin Harbour District, and the minimum area to be entered was 100 acres (the Government scheme only required 50 acre blocks when it set out the competition conditions later in the year). Fourteen farmers entered the competition, and the following awards were made:

1st P. C. Wake, Elbow Hill –
Gluyas and Carrawa
2nd J. S. Jacobs, Miltalie –
Carrawa, Warren and Major
3rd J. P. Story, Miltalie –
Carrawa, Bluey and Major

Soon, branches all over the State took advantage of the Government scheme, and wheat crop competitions became very popular. From advertising the methods of sowing and fertilising of winning crops, other farmers learnt how to make the best use of their land and average yields gradually increased.

A new plan to subsidise pure-bred bulls was instituted in 1924 to aid dairy farmers. This time the bulls were purchased by individuals rather than branches of the Agricultural Bureau as they had been in the subsidy scheme introduced in 1900, but were still expected to be available to service "outside" cows during the first 12 months after purchase. A fee of not more than 10s could be charged. The Government subsidy reimbursed the buyer for 60% of the purchase price, a very generous offer.

The 1924 Congress included a Women's session for the first time. By this time there were eight branches of the WAB. Dr Gertrude Halley, Medical Inspector of Schools, addressed the Women's Session first. In her discussion of *The Health of Country Children* she spoke on the importance of strength and sanitation.

She explained how infectious diseases spread, and the importance of building the body up to offer strong resistance to disease germs. Country people got plenty of fresh air in the day time, but, since most human beings, on the average, spent four months of the year in bed, it was equally important to have well ventilated sleeping quarters. The closed bedroom window was seen in country districts more often than not. Children walking long distances to school, especially after milking several cows, needed a hot meal at night and a hot drink before beginning school work. Rheumatism was also prevalent in country schools, where children

Winners of the Geranium Branch Crop Competition, 1928. Back L-R: Messrs Wally Beelitz, Lloyd Prouse, Eric Williams, Arty Beelitz. Front L-R: Messrs O Prouse, Viv Polkinghorne, – Cross.

were accustomed to sit in their damp shoes and stockings. (*JASA*, November 1924, p. 342.)

There followed a discussion on agricultural education for women. Some of the people present believed that women should concentrate on the home and sidelines such as gardening, butter-making and poultry. Others, however, saw the need for women to become involved in all aspects of agriculture. The Waite bequest had provided for a women's agricultural college as part of its programme, but as yet nothing had come of it. A short course in rural domestic science was available, but had not received Government approval at that time. The conference resolved that "the Department of Agriculture adds to its staff some experts who could come and give practical demonstrations to our Branches – particularly a woman doctor to give health talks, and an authority on domestic science". (*JASA*, November 1924, p. 344.)

The session was then addressed by the second speaker, Mr W. L. Davies from the Kalangadoo Branch of the Men's Agricultural Bureau. An advocate of women's rights, he pointed to the poor regard in which women were often held, in a talk entitled *A Plea for the Farm Women*. These women who had worked so hard and sacrificed so much, deserved better, yet he had seen men treat their stock with more kindness than their wives.

> There were many settlers who went on the land who, to his mind, seemed to start at the wrong end of the job. He knew only too well that funds would not allow them to do all that they would wish, but there were some who seemed to think that, while Dobbin must have a nice warm stable, anything would do for mother and the youngsters until they could get a start, and the start often took so long to accomplish that by the time the nice big new house was built the youngsters had scattered and mother somehow did not seem to have much appreciation left for her altered circumstances.
>
> He once knew a man who would never leave his horses to stand in the dray for 10 minutes without slipping the nosebags on their heads, yet for 20 years his wife milked anything up to half a dozen cows in a bail in the open without a roof of any sort to shield her from the rain and sun. And that was in a timbered country, and within a short distance of enough thatch to cover acres of sheds. (*JASA*, November 1924, p. 344.)

This first Women's Session was very popular and became an important part of the Agricultural Bureau's Annual Congress for many years.

Six years later, the Minister for Agriculture, Hon. S. R. Whitford pointed out that only 18 of the 300 branches of the Agricultural Bureau were Women's Branches. He was concerned with raising the status of women and believed that there should be as many women's branches as men's; however, this equality was not to come about until 1935 when there was a sudden increase of members in the WAB.

One thing South Australian farmers had in plentiful supply was eucalyptus. On Kangaroo Island in particular the oil from these trees was distilled and proved to be a profitable business. Mr H. J. Wiadrowski pointed out to the McGillvray Branch that it was a better paying proposition than growing cereals under the present conditions:

> the oil industry is not so much at the mercy of the weather. Payable returns can be obtained in the driest seasons, and very wet years, when the grain crops are swamped and water-logged, are the most profitable for the distiller . . . One man with a properly arranged distillery and a vat of 1,000 gall capacity, can easily produce five tons of oil per season. At the low price of 1s 3d per pound, this equals £700. It requires 448 stills of leaf to produce this amount of oil, averaging 25 lb per still, which is not a high average. Cutting the leaf costs 12s per still, or a total of £268 16s which leaves the distillier £431 4s for his work and the use and upkeep of two horses. I have not allowed anything for depreciation of plant, because this, on a properly erected distillery, is very little. The above return is based on a very low price, for on present prices the net return would be £571 4s for the same quantity. The complete plant necessary to produce that quantity could be erected for £300, and depreciation at the very outside would not be more than 10 per cent. These calculations have been based on a man working a "still" for 10 months a year and five days a week, doing two "stills" per day, which can easily be done in nine hours, allowing for carting, and if a settler has an abundance of raw material, he can increase the output by one third . . . Regarding wool production, I consider that this can be carried on just as successfully in conjunction with oil production as with grain, for I am fully convinced that it would be a profitable investment to cultivate the leaf country and grow fodder crops for grazing purposes. This would not harm the mallee to a very great extent, and the remainder could be cut more frequently and yield considerably more oil owing to the cultivations. (*JASA*, August 1924, pp. 89-92.)

The first Kangaroo Island Conference was held at Kingscote on 21 February 1925. Delegates from all over the island attended, as well as several official guests including Mr C. A. Loxton (Chief Inspector of Stock), Mr W. J. Spafford (Chief Agricultural Instructor), Mr A. H. Codrington (Wool Instructor of the School of Mines) and Mr H. J. Finnis (Secretary of the ABA). Mr Finnis spoke on the usefulness of the Agricultural Bureau, especially with regard to district conferences. A question and answer time then followed, during which delegates picked the brains of the visiting experts. Mr Codrington then addressed the group, and Mr Loxton gave a veterinary demonstration which included a post-mortem examination of a horse. Mr Spafford also gave a talk on *Top Dressing of Pastures* and the day ended with a Free Parliament session. The visiting officers inspected a number of farms in the area, offering useful advice on stock and agricultural problems as they went.

The June meeting of the Glossop Branch took the form of a show of produce in 1925. These shows were popular in the early days of the Bureau but had dropped off over the years. At Glossop the idea was for everyone to exhibit their produce regardless of its quality. This was believed to be of real educational value, since observers could see the difference resulting from different treatment and growing conditions. No entrance fee was required, and no prizes offered. Certificates were granted to the best entry in each section. The vegetable section proved a "revelation" – 70 lb marrows, 2 lb carrots and 2 lb onions revealed the fertility of the rich soil in the district. Three hundred people attended and enjoyed themselves so much that the "Glossop Show" became an annual event.

On 23 January 1924 the Minister of Agriculture, the Hon. J. Cowan, had proposed strengthening the ABA with several new members. He announced a plan during a speech at the State Experimental Orchard at Berri which the Board was inspecting. He named five men whom he considered desirable:–

H. S. Taylor, Renmark–	Representing the Irrigation Settlements Board
A. B. Feuerheerdt, Naracoorte–	Representing the South East
P. H. Jones, Pinaroo–	Representing the mallee farming areas
J. Wallace Sandford–	Representing the dairy industry
C. A. Loxton–	Chief Inspector of Stock

However, a change of Minister resulted in drastic cuts the following year. Six members of the ABA were due to retire due to the effluxion of time. They were W. S. Kelly, Captain S. A. White, Colonel J. Rowell, A. M. Dawkins, George Jeffrey and the President of the Vine Growers' Association. The Hon. T. Butterfield, the new Minister of Agriculture, decided that only the last named would be reappointed. All of the unofficial members (H. Wicks, C. J. Tuckwell, L. Cowan, J. W. Sandford, P. H. Jones and A. B. Feuerheerdt) resigned on the grounds that it was impossible to carry out all of their duties in a responsible fashion with so few on the Board. The governing body of the Agricultural Bureau was again named the Central Agricultural Bureau.

The reduction of the Board was deplored by many of those involved. W. S. Kelly wrote to the local papers criticising this move, and Butterfield felt it necessary to defend his unpopular decision at the 1925 Congress. By this stage, he had a group of five men to advise and consult him in his ministerial duties. The CAB was comprised of Dr A. E. V. Richardson, F. Coleman, A. M. Dawkins and H. S. Taylor, all members of the old ABA. He intended to add another member, H. N. Wicks, an energetic young fruit grower from Balhannah.

The annual appointment of members of the CAB was announced at the October Meeting. A total of 13 men was to make up the Board, representing different geographical areas and industries of the State. This time the members were to be F. Coleman, Saddleworth; P. H. Jones, Pinnaroo; A. M. Dawkins, Angle Vale; H. N. Wicks, Balhannah; H S. Taylor, Renmark; R. H. Martin, Kensington Gardens; R. Wiese, Mundalla; Prof. A. J. Perkins, Director of Agriculture; W. J. Colebatch, Principal, Roseworthy Agricultural College; Dr A. E. V. Richardson, Principal of Waite Research Institution. A further gentleman was to be appointed to represent "general farming" and two more to represent dairying.

The new constitution and duties of the Central Agricultural Bureau were set out in the February issue of the *Journal of Agriculture of South Australia* in 1926. The list of duties give us some insight into its own interpretation of the role the Central Bureau should play.

Duties

To supervise and act as a Central Board of Control of the Agricultural Bureau of South Australia.

To consider any matters which the Hon. Minister may from time to time refer to the Board, and to report thereon.

To organise and attend Congresses and Conferences and other special meetings related to the work of the Agricultural Bureau.

To promote the interests which the members have been appointed to represent, and take such action as may be expedient in connection therewith.

To submit the Hon. the Minister of Agriculture an annual report of the work of the Bureau. (*JASA*, February 1926, p. 650.)

By this time the North Yorke Peninsula Field Trial Society was an established part of the rural year. On 12 January 1927 the trials were attended by over 5,000 people and more than 1,000 cars were lined up. Improved transport facilities enabled more people to travel greater distances; the fine reputation of the trials encouraged them to take advantage of this convenience. In 1900 the Government had awarded 120 acres along the railway line to the society. Sixty acres of this land had been divided into 13 plots which were sown with Belgian Wonder wheat for the 1926/27 season. Tractors and harvesters were tested in 1927 with generally good results. Of particular interest was Hannaford's wheat pickler and grader which was also on view that day.

In 1927 the Superphosphate Association (Wallaroo-Mt Lyell Fertilisers and the Adelaide Chemical and Fertiliser Company offered nine trophies for Improved Pasture competitions throughout the State. There were to be five districts in the competition, coinciding with the areas to which District Agricultural Instructors had recently been appointed. These were Central, Northern, South-Eastern, Eyre Peninsula and the Murray Mallee. Two prizes were to be offered in each district for Natural and Sown Pastures, except the Murray Mallee in which only one prize for any pasture was offered. For the purpose of the competition, a "Sown Pasture" must not be less than 5 acres in extent, "Natural Pasture" not less than 10 acres and at least 20 acres were required in the Murray Mallee. The judges were to be the District Agriculture and Dairy Instructors, and the competitions would be administered through the Central Agricultural Bureau. The scale of points was set out:–

	Natural Pasture	Sown Pasture
1 Bulk of Pasture available per unit of area	40	30
2 Quality of pasture–		
a) Type of plants present	15	15
b) Feeding value of plants	15	10
3 Freedom from useless plants	10	25
4 General care of Pasture	10	10
5 Area Offered for competition	10	10
TOTALS	100	100

For the Sown Pasture entries 2 points shall be allowed for every 5 acres, or portion thereof, up to a maximum of 10 points.

In the Natural Pasture entries 2 points shall be awarded for every 10 acres, or portion thereof, up to a maximum of 10 points.

In the Murray Mallee entries, 2 points shall be awarded for every 20 acres or portion thereof up to a maximum of 10 points. (*JASA*, February 15, 1927, p. 746.)

The first conference on the Far West Coast was held at Ceduna on 10 February 1927. Despite temperatures of 112 degrees F in the shade, a strong north wind and a call for volunteers to fight a bushfire, the conference was a success. Approximately 80 delegates attended from the Goode, Maltee, Smoky Bay, Charra, O'Loughlin and Mudamuckla Branches. Also present were Mr R. Wiese (Member of Central Agricultural Bureau), Prof. A. J. Perkins (Director of Agriculture), Mr H. B. Barlow (Chief Dairy Instructor), Mr H. D. M. Adams (District Agricultural Instructor), and Mr F. C. Richards (Assistant General Secretary, Central Agricultural Bureau).

After an opening by Mr Wiese, Mr J. W. Blumson of Smoky Bay read a paper on the *Conservation of Water and Fodder*. He emphasised the necessity for water tanks in that area; to cart water required far too much time and labour. Underground tanks were useful provided they were covered. He also recommended storing cocky chaff to use when hay chaff was in short supply.

This was followed by a paper on *Stock Breeding and Raising* by Mr E. Pfeiffer of the Goode Branch. He reminded his audience that breeding alone would not ensure success; proper care and attention must be paid to livestock. The combinaton of sheep and wheat worked well, and oats sown on country affected by take-all provided excellent feed for breeding ewes. It was important not to overstock – fewer well-fed sheep were more profitable than a large number of half-starved animals which would be more prone to disease.

Another member of the Goode Branch, Mr L. B. Hughes, then spoke on the subject of *Red Rust*. Although some growing conditions seemed more likely to produce rusty crops, the answer lay in growing rust-resistant varieties. A Free Parliament session followed, then Mr W. Pfeiffer of the O'Loughlin Branch read a paper on scrub clearing. He suggested that the Government should provide financial assistance to men who cleared mallee scrub blocks, turning it into profitable agricultural land. The benefits of their work would be enjoyed by generations to come and the whole State would profit from their efforts. This is particularly interesting in the light of today's stringent restrictions on clearing scrubland.

A series of questions (from the branches) and answers (from the visiting experts) started off with a discussion of coast disease. As far as was known, it did not seem to be related to deficiencies in diet, as many experiments with different feeds had not prevented the disease. However, post-mortem examinations of stock had revealed stomach worms. Thus regular drenchings with a solution of 1 per cent copper sulphate were recommended. It would be another 10 years before stock owners realised it was the copper sulphate that mattered, since coast disease was caused by a mineral deficiency. Other questions related to the cultipacker for preparing seedbeds, Jersey cows and flyblown sheep. The local farmers enjoyed this opportunity to get expert advice on the problems they faced. All in all it was a very informative day.

The proven benefits of applying superphosphate to crops led to its use on grasslands as well, where it also increased growth. However, a fast method of application was necessary to make it worthwhile. A broadcasting machine was developed for this purpose, and demonstrations of it were held under the auspices of the Agricultural Bureau. One such demonstration took place on the property of Mr C. W. Ness of Second Valley on 14 March 1927. Over 70 people attended, including Mr R Hill, the Agricultural Instructor, Mr F. C. Richards, Assistant General Secretary of Central Agricultural Bureau, Mr S. R. Cockburn representing the Superphosphates Association of South Australia, and Mr May of May Bros, Gawler. Six acres were topdressed at a rate of one bag of superphosphate per acre. When attached to a horse-drawn trolley, the machine could be used to treat 40-50 acres in a day and up to 160 acres when used with a motor lorry. An arrangement was made to return to the site the following spring to see the effects of the day's work.

A Fallow Competition was conducted at Kapunda on 4-7 March 1927. Of the 24 entries, many could be greatly improved. Mr R. Hill, Agricultural Instructor, judged the competition and reported that

> The outstanding fault, in the majority of cases, was that fallowed land had been sadly neglected during the summer months. The moisture content of the different types of soil supports that belief, and, if this is studied, it will be seen that the type of soil which is of a self-mulching nature contains the highest percentage of moisture, even though the cultivation given had little to do in bringing that about. With more attention given to the necessity for having a shallow, loose mulch during the whole of the cultivating period, more moisture can be conserved, and, in addition, the depth of cultivation can be regulated, and a firm "seedbed" established at the correct depth. The establishing of a seedbed is very important, and it should be at the depth that it is intended to sow the seed. (*JASA*, May 16, 1927, p. 1035.)

Winners were:

1. F. H. Poysden
2. E. R. Jonsen
3. R. & W. Hughes

It could be expected that local farmers would learn a lot from the competition, and greater benefits from fallowing would follow.

Another Fallow Competition was instituted at Pinnaroo the same year. The judges awarded equal points for cultivation, absence of weeds, mulch and moisture control. The most successful fallowing was on the property of Mr P. J. Edwards, second was Mr Angel, and third Mr H. F. Ahrns.

On 29 April the first of a series of agricultural lectures was broadcast on 5CL Adelaide. The suggestion for such broadcasts had first been made by Mr W. A. Read, Balhannah at the 1926 Hills Conference at Tweedvale. The other Bureau members present agreed it was a good idea and the resolution passed. The 20 minute lectures were to be given by technical officers of the

Department of Agriculture, Roseworthy College, Waite Institute, School of Mines and the Stock and Brands Department. Broadcast on Fridays at 9.15 p.m., they were a useful source of information. From 21 May 1928 the time was changed to 7.40 p.m. (and 8.30 p.m. in the summer) on Mondays. These lectures continued to be broadcast on a weekly basis until they were cancelled in November 1929 to allow other subjects air time.

The success of pruning competitions in the Lower North and River Murray Valley led to Junior Pruning Competitions being arranged. The McLaren Flat Branch organised a contest for boys under 15 years, and one for boys between 15 and 18 years on Mr I. Ingoldby's property. The Murray Bridge Branch arranged for the High School boys to compete pruning vines, apricots and peaches.

The State Wheat Crop Competitions were very well supported by this time, and in 1928 the Royal Agricultural and Horticultural Society offered a shield for a Championship Wheat Competition. The best crop in the whole of the State would win the shield, and it was to be kept by the winner's branch until the following year. The first season it was won by Mr F. V. Trenorden (Mundalla Branch) with a crop grown at Bordertown.

The shield donated by the Royal Agricultural and Horticultural Society for the Champion Wheat Crop Competition.

Yet another change in name was in store for the governing body of the Agricultural Bureau. At the 1928 Congress the Minister of Agriculture, Hon. J. Cowan, announced his proposal to rename the Central Agricultural Bureau the "Advisory Board of Agriculture". His reason for this was that the Board was to regain its function as an advisory body to the Minister of Agriculture. It was an important aspect of their work, as the collective knowledge of the men involved amounted to a very useful resource. The meeting on 30 January 1929 marked the changeover from the Central Agricultural Bureau to the Advisory Board of Agriculture.

The Agricultural Bureau had always seen itself primarily as an educational institution – meetings were arranged specifically for the exchange of knowledge. Mr W. J. Dalby of the Rhynie Branch also saw the Agricultural Bureau as an organisation ideally suited to instructing young people intending to go on the land. He explained a scheme already in action at Rhynie whereby the Agricultural Bureau members imparted their knowledge to the boys and girls eager to learn from them.

> I venture to say that at any centre where a school exists, and a Branch of the Agricultural Bureau is established, two or three at least of the Bureau members are qualified to give instruction to a class of boys or girls in some special branch of industry ... the Rhynie Agricultural Bureau, which acts in conjunction with the Rhynie Project Club, and subjects on which lectures have been given by members are veterinary anatomy, woolclassing, and pruning. In addition to the above subjects – which are taught practically as well as theoretically – are stock breeding (cattle and sheep), fruit preserving, cake making, etc ... The Bureau Secretary, when arranging for an agricultural, horticultural, viticultural, wool, sheep, or cattle expert to visit the district, and give a practical demonstration before the Bureau, advises the Secretary of the Project Club, who is the local teacher. The children in the class receiving instruction are notified, and they attend the practical demonstration and the meetings of the Bureau, take notes, and ask their instructor questions at the next lesson. So eager are the boys and girls that the attendances have been excellent, a keen interest displayed, and results beyond expectation. Rhynie girls have won

prizes for cooking, preserving fruit, sweets making, and table decoration at the Auburn Show. The boys have won prizes for wool judging (Merino), sheep and cattle judging at the Auburn Show, and a Rhynie boy was runner-up in the cattle judging at the 1927 Adelaide Show. They have also won prizes for collections of vegetables at Auburn and Tarlee Shows. Two boys who competed in the juvenile vine-pruning competition at Messrs Sobels' Vineyard, Watervale, last July, gained third prize for rod and spur pruning, and first and second in spur pruning. Both Rhynie boys were under 14 years of age, and secured 92 points. When it is considered that the winner of the men's section of pruning gained 94 points, and the boys 92 and 87 respectively, it shows the interest they take in the subject, and how well they learned their lessons. (*JASA*, May 1928, p. 956-7)

The Bureau was not only an educational organisation, however. Meetings were also an opportunity for social contact between men in a district. Some branches emphasised this aspect of the Bureau more than others. The Kanni Branch served a small community south of Waikerie in the Riverland for a few years. A relatively isolated settlement, the residents enjoyed a chance to get together. At the end of Bureau meetings the members removed their jackets and boxing gloves were produced. They proceeded to have an invigorating warm up session before going home. The Rosedale Branch also enjoyed the social element of their meetings. To generate a friendly, hospitable atmosphere, cigarettes and soft drinks were handed around to those present. This practice continued until 1957, when they decided that at each meeting, two members should be rostered as hosts to provide tea and biscuits for the others. This lighter side of Bureau life encouraged good attendance and broke the ice for those who were new to the area or shy about discussing their opinions and ideas in front of the whole group during the formal part of the meeting.

The first conference of non-irrigated fruit-growing branches was held at Nuriootpa on 16 November 1928. The branches representing this category included Angaston, Watervale, Lyndoch, Willamstown and Light's Pass. Ten official guests were also present – Messrs H. N. Wicks (member, Central Agricultural Bureau), W. J. Spafford (Deputy Director of Agriculture), G. Quinn (Chief Horticultural Instructor), R. Fowler (Manager, Blackwood Experimental Orchard), C. H. Beaumont, E. Leishman, J. B. Harris and H. H. Orchard (Horticultural Instructors), H. C. Pritchard (Secretary) and F. C. Richards (Assistant Secretary, Agricultural Bureau). Two papers were read, *Drying apricots* by Mr A. Ash of the Williamstown Branch, and *Manurial Tests with Vines in the Barossa Valley* by Mr D. G. Quinn (Viticulturalist, Roseworthy Agricultural College). The rest of the time was taken up with a Free Parliament and a question and answer session during which local horticulturalists could obtain advice from the experts present.

It was around this time that fruit growers were seriously considering the overseas market for their fresh product. Apples in particular were an ideal fruit for export, provided suitable packing could be arranged. To this end, Mr R. Hall read a paper on *The need for a Uniform Apple Pack* at a meeting of the Lenswood and Forest Range Branch. He concluded that the "cheek pack" was best because it avoided much of the bruising caused when apples were packed flat. It was also necessary to make this method of packing general so that agents could purchase large quantities of regular quality produce for distribution amongst their overseas buyers.

Tractors were gradually becoming part of the rural scene during these years. Although by no means common, they were definitely here to stay. In 1923 a McCormick-Deering tractor was advertised for £600, still a lot to pay when horses were capable of doing the job. However, the Fordson tractor could be bought for £250, a much more manageable figure. Thus the Fordson became one of the most popular tractors in the post-war period.

The debate continued, however, and many farmers preferred to stick to horses rather than venture into the unknown. Papers read at a meeting of the Clare Branch in 1929 show us both sides of the debate. Mr L. Hauschild spoke in favour of horses, "they are surer, safer, and more reliable". (*JASA*, March 1929, p. 742.) He pointed out that the use of tractors meant money going out of Australia to buy the machines, fuel, oil and grease. Mr A. V. Preiss, on the other hand, saw only the advantages of motorised farmwork. Tractors do not tire after a few hours work, and do not require food and water.

> The tractor is very convenient for the new settler, as he has no need to make provision for water, avoids the expense and trouble of getting chaff, and, when not in use, does not have to [be] fed and looked after, leaving the farmer free to do more clearing, fencing, etc.
>
> A light lorry load capable of carrying 25 to 30 bags of wheat is very necessary to work in conjunction with the tractor. With it practically

all the carting on the farm can be done. It can easily outdo a team of eight horses when wheat has to be carted long distances. It is also very handy for carting out seed and super at seeding time. The power farmer has a freer life, not having to always be at home to feed and water his horses. At Saturday dinner-time he can stop his machine and leave it until Monday morning without any attention whatsoever. Years ago one heard of the drudgery of farm life; today that is all done away with, thanks to the motor car, motor truck and tractor. (*JASA*, March 15, 1929, p. 744.)

Water was a major concern for farmers keeping stock in those days, just as it is now. The decision for some was whether to use wind or motor power to raise underground water from wells. Two papers, one in favour of each, were given at the Light's Pass Branch. Mr W. Koop believed the answer was to use windmills.

Under local conditions wind power is the cheapest method of raising water. While the wind is blowing the storage tanks are filled without cost or attention. An engine requires attention in oiling petrol or kerosene, and must be stopped at night, for it is not safe to leave it unattended for longer than one hour. Most women will not undertake to start or stop an engine, whereas a mill can be easily handled. The windmill can be left open day and night without any danger of damage, because it is fitted with storm regulators, which close the mill in case of a storm, provided the furling arrangements are in working order and weights properly adjusted. Continuous stormy weather can be easily overcome by closing the lever half down and tying it to the stand with a piece of rope. Windmills can be used for all classes of irrigation, there being all sizes of mills and pumps to suit small or large plots. A 14 ft mill will pump equally as much water as a fair size engine in a full day's pumping. Where the water supply is limited the windmill, by pumping a slower stream, will give the well a better chance to keep up a supply. For a small block of lucerne or vegetables a 7 ft or 8 ft mill can be successfully used provided a fair size storage tank is erected. For the latter I advise nothing less than 2,000 gall. If watering is properly regulated, it will be possible to water from one to two acres, provided the water supply is good. Storage tanks are most necessary when erecting a windmill, because calm days have to be amply provided for. Care of Windmills – Drain old oil once every year, and replace with new oil. This will double the life of the wearing part of the mill. There are several oil holes and grease cups which need attention every two or three months. See that the oil pump is in working order. The old type mill needs regular oiling on account of it being exposed to all weather. The engine needs regular attention every day. There will be very little difference in the cost of the two outfits, but running expenses will differ to a great extent. (*JASA*, January 1930, p. 545.)

Windmills provided the most effective means of pumping water in many instances.

This was followed by Mr K. Ellis' paper extolling the virtues of engine power. He concluded with this list of advantages:

Water at your command, and not influenced by the vagaries of the wind. A very marked saving of time. The pump engine can be used for other work than pumping. A tractor can be used quite successfully. Erection of plant is a very simple operation, initial cost being very little more, if any. An engine and pump capable of lifting 1,000 gall. per hour for £50, running expenses about tuppence ha'penny per hour. An all-round increase in pumping efficiency. Although the cost may seem rather large, this will amply

repay itself by the increased efficiency obtained. (*JASA*, January 1930, p. 545.)

As the world economic situation deteriorated and farmers experienced a few dry years, their interest turned once again to farm sidelines. A few extra pounds here and there could make all the difference. In the wheat growing districts emphasis was on keeping a small mob of sheep, in the higher rainfall areas, farmers turned to pigs and dairy cattle to supplement their incomes. Mr Lutz of the Koonibba Branch reported on the profits obtained by him from various sidelines. He referred to sheep, which he said were a very payable asset to the farmer, but too often the holding was over-stocked. For their district he considered a flock of 100 sheep ample for the average farm. He kept six cows, four of which were always in milk. He admitted that the cows were a tie and involved a good deal of time and care, but 12 months returns from them had netted £75 in 1928 and £55 in 1929. On account of adverse seasons the number of cattle had to be reduced, and the sale of surplus cows had returned £37 10s. Pigs were a very profitable sideline, but required proper care and attention. In the last two years his pigs had returned £61. One hundred and fifty laying hens had brought in £87 in two years. Sundries such as skins, fat, etc. had brought in £21 for two years. With the amount received for wool from sheep, the sidelines on his farm had returned in revenue £403 for two years, thus proving that, conducted on sound principles, side lines could be made a profit earning activity of farm management. From such an experience, and on a one man farm he was convinced that with a return to normal seasons he could confidently look forward to a return of £270. (*JASA*, December 1929, p. 466.)

1929 turned out to be a severe drought, coupled with a worldwide Depression. The effects of the Wall Street Crash filtered through to South Australian farmers as they embarked on the new decade. This paper given at a meeting of the Pt Elliot Branch by Mr A. M. Fuller in February 1930 sums up the situation.

It is needless for me to remind members that we are passing through a period of extreme depression. The season in this district has been favourable, but we are conscious of the fact that the greater part of the State has suffered considerably as a result of drought, which has extended over a period of years, and in 1929 many farmers received no return whatever from their farms. On many holdings in the pastoral country flocks have been considerably reduced, while on others it has not been possible to carry any stock owing to the bad seasonal conditions. The result of the adverse season means very reduced average crop returns, reduced wool clip, and reduced lambing. The effect of reduced production, from the State point of view, would not be so serious if prices were normal, but we are all too well aware of the fact that we have to accept prices that are below cost of production. This is not only a serious blow to the State, but to the individual producer. Fortunately, the man on the land is an incurable optimist, always hoping the next season is going to lift him out of the financial hole, and I confidently believe that 1930 will see the return of normal seasons

1929 Farmers' School at Roseworthy Agricultural College.

and a return to prosperity. (*JASA*, May 1930, p. 932)

If the '20s were a decade of competitions, the '30s can be seen as a decade of field days. With more cars around to make travelling faster and more convenient, members of the Agricultural Bureau could move about more easily. Going from one farm to another became a simpler operation, so they were keener to get out and see for themselves the results of experiments. Members of the Agricultural Bureau enthusiastically supported these events. Everywhere branches organised field days as part of their annual programme. Unfortunately, towards the end of the '30s farmers found themselves in such a tough position that many could no longer afford to register cars or buy petrol for them. But by this time field days had become so much a part of Agricultural Bureau life that many members continued to attend if at all possible.

Difficult years were ahead, especially for wheat growers. In January 1931 the lowest prices ever recorded were reported in the *Journal of Agriculture of South Australia* – only 2s per bushel. Six years previously, in January 1925, the peak price was 6s 9d per bushel, almost three and a half times as much. The reason for these low prices rested in the North American Wheat Pool. It had built up a surplus of wheat in previous years which was suddenly released to swamp the marketplace; not surprisingly, buyers took advantage of the situation and bought as cheaply as possible. Ironically, in the mid 1980s Australian wheatgrowers find themselves in a very difficult situation; again it is the foreign marketing policies which are largely responsible. Fortunately for some farmers in the 1930s, wool prices stayed up and even until 1937 sheep were a better proposition than wheat for most. In order to try to ease the situation, the Government passed a Wheat Bounty Act in 1931. A bounty of fourpence ha'penny per bushel was payable on all wheat from the 1931/32 harvest sold, or delivered for sale, on or before 1 October 1932.

The first cinema lectures conducted as part of the Agricultural Bureau proceedings occurred in 1931. The Shell Company arranged the first one for the Owen Branch on 3 June, and this was followed by another on the 17th arranged by the Vacuum Oil Company. Both were a resounding success, with attendances of over 100 at each screening. The Vaccuum Oil Company also showed their film at meetings of the Wasleys, Riverton and Balhannah Branches of the Agricultural Bureau that winter.

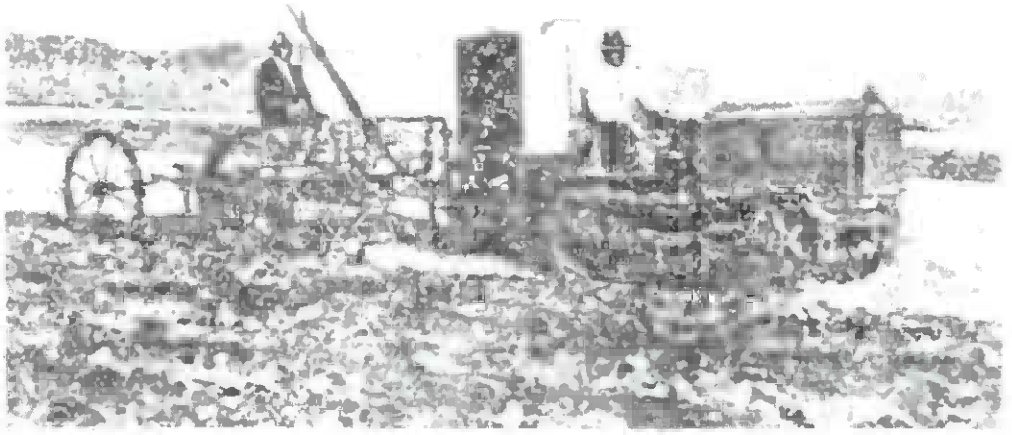
Although the convenience of motor power was gradually winning over farmers all across the State, the difficult financial position caused many problems. A cheaper fuel was necessary if they were to continue using tractors. At least horses could be fed from their own land, even if it did take much more work. The problem for most farmers at this time was finding ready cash to pay out for tractor fuel. One way of overcoming the cost of fuel lay in the use of wood produced gas. Wood burners could be attached to the machines and the gas given off used to propel the tractor. Trials were held at Enfield in April 1931 to determine the relative costs of petrol driven and wood gas driven tractors. The results showed that, for an average day of eight and a half hours actual working time, the petrol driven tractor cost £1 4s 1 1/2d to run, whereas the wood gas driven tractor cost only 5s 2d. These costs were calculated using the going prices of wood at £2 per ton and petrol at 2s per gallon. Clearly, if one were to continue using the tractor, it was necessary to think seriously about converting it to wood gas.

A paper comparing the working costs of kerosene and charcoal gas tractors was given at a meeting of the Petersville Branch in November 1931. It was pointed out that using charcoal gas reduced efficiency by approximately 20 per cent. Even so, the cost of running a gas producer tractor was reckoned to be half that of a kerosene tractor. The reader finished off by reminding his audience of the wider significance of using producer gas rather than kerosene.

> This question is of national importance to Australia; all our oil fuels are imported and a large percentage of money spent in these goes out of the country, whereas charcoal gas is developing a local industry and not sending money overseas for something which is not essential, therefore it is as economically sound from a national standpoint as using horses and much cheaper and more efficient. (*JASA*, January 1932, p. 192)

In a similar discussion at the Pinnaroo conference held at Jabuk in 1932, Mr L. Foale of Parilla estimated that,

> With the gas producer, the tractor loses from 15 per cent to 20 per cent of the power when working one machine only. It would work a 28 row combine or cultivator and a 16 furrow gang plough, but the pace is reduced from 30 per cent to 35 per cent, which means that instead of doing from 5 to 6 acres per hour with petrol or kerosene, with the gas producer, taking into consideration that a stop to refuel must be



A Wood gas tractor pulling a six-furrow plough.

made every 1 to 1½ hours, the acreage per hour is reduced to from 3¼ to 4 acres with the wider machines and 2½ to 3 acres per hour with a 16 furrow gang plough. This gives some idea of the difference in the work which can be accomplished by the two fuels.

Costs

One acre on petrol with petrol at 2s 1½d per gallon landed on the farm, including oil, cost approximately 1s 3d per acre; and on kerosene at 1s 4d per gallon, which had to be carted from station or depot, including oil, works out at approximately 1s per acre.

A variation is also made if the working is light or heavy. My costs and working are based on a medium working of the land, on carbon monoxide gas produced from charcoal and water, with charcoal at a saleable value of £2 10s per ton. The charcoal before being used must be rescreened and broken to a size a little larger than a walnut. This procedure entails a fair amount of work.

Fallowing with an 8-furrow heavy fallowing plough can be done for 5½d per acre, cultivating fallow with a spring-tooth cultivator 3d per acre, with a 16 furrow skim plough 4½d per acre, seeding with a 20 row combine 3½d per acre. These figures are approximate, but at the same time are very close to the mark. When the farmer makes his own charcoal, these costs are reduced very considerably, as the stumps must be carted off the land and can be carted straight to the pits for burning. The only outlay when the farmer makes his own charcoal is 1 to 1½ gallons of petrol per day, used for starting the tractor after each stop to refuel. (*JASA*, August 1932, p. 72.)

Although gas producers were not nearly as convenient as petrol, they were certainly cheaper, a major consideration when ready cash was severely limited.

By 1931, South Australian farmers were already feeling the full effects of the Depression. Many could not afford to register their cars; those who wanted to attend meetings of the Agricultural Bureau needed branches close to home. They had to be able to travel to branch meetings by pushbike or horseback. The Bureau members living near Belvidere found great difficulties in travelling all the way to Strathalbyn to attend meetings, but their application for a local branch of their own was refused. However, their enthusiasm was not so easily dampened, and they defied the Advisory Board's decision and went it alone. Hearing of this, Mr Pritchard, Secretary of the ABA attended their meetings on 23 June 1931. He travelled as far

Members of the Belvidere Branch in 1987.
Back L-R: Messrs John Westlake, Don Natt, Lance Wakefield, Bert Michelmore.
Front L-R: Messrs Jim Natt (Sec), Charles Michelmore (Pres), Ian Cleggett.

as possible by train, then walked the rest of the way to meet these determined men. Impressed by their dedication, he announced that they could officially form the Belvidere Branch of the Agricultural Bureau.

Questions of finance and economising were frequently discussed at Agricultural Bureau meetings during this period. Producers were feeling the effects of the Depression after a run of poor seasons. They strove to find more efficient methods of production; many advised their colleagues to do everything properly the first time, rather than trying to cut corners which inevitably led to further work and expense, coupled with loss of time and production. The question of bulk-handling grain was raised again as a measure to cut costs in the long term. In particular, many papers were given at meetings on book-keeping for farmers. It was considered essential for producers to keep a close check on their finances to ensure money was not wasted. By maintaining records it would be possible to identify areas in which costs could be reduced.

Mr R. H. Hall discussed precisely this in his paper *Book-Keeping for Blockers* at the Waikerie Bureau:

> None of you are growing fruit as a hobby – you are all trying to make a profit out of it. But how many growers know whether they are actually making a profit from the block as a whole, or from any particular part of it, or from any one of the varieties of fruit grown? It is here that the advantage to the fruitgrower of a good system of book-keeping becomes apparent. By its aid, one may discover whether a particular area is really paying its way, or not, and thus be led to make any alterations in one's methods that may be necessary. The accounts may even show that, in a particular case it would pay to grub out a certain variety and substitute something else, although in such an extreme case, one's own observations, as practical growers, of the trees or vines concerned, should be sufficient to guide the decision. It does not necessarily follow, however, that maximum crops mean maximum net returns – the cost of production must be taken into account. (*JASA*, February 2, 1938, pp. 681-2.)

Similar issues would continue to concern Agricultural Bureau members right up until war was declared in 1939.

Mr R. H. Hughes of the Kapunda Branch read a paper entitled *Practical Economy on the Farm* at the Lower North Conference in 1932.

With the majority, that cry of "Economy" amounts to an almost prohibition of expenditure of any kind, but for the purpose of this paper, I prefer to keep to the dictionary meaning, "judicious expenditure of money", that is to say, where energy or money wisely spent on any farming operation will increase the profit, by all means spend it if available, and contrariwise, where it will not return a good profit then try and find some more profitable outlet for it.

At the present time, when all agricultural products are at low prices, it behoves every farmer to look into costs of production of each line and see that each line is returning him its maximum production in both quantity and quality. If it is not, then he should seek out the reason and endeavour to correct the faults. When prices of our products are low and bankers are cutting down overdrafts or refusing to advance money, which till recently, was easily obtainable, there is only one place to look for redress, and that is ourselves and our methods ... Having dealt with the main farming industries, consideration can be given to a few practices which can be more generally observed from an economical standpoint. Most farmers have horses, and the headlands are usually cut for hay. It is suggested that these be sown with good hay wheats; the difference in quantity and palatability as compared with grain wheats is well worth while. If the farmer is not sure of the quantity he will require, or the likely quantity on the headlands, he can sow a patch of dual purpose wheat and so avoid cutting into desirable areas of grain wheat – usually the heaviest portion.

Another often neglected point is the overhauling of implements and machinery in slack times – having them ready to start work when required. Many small jobs can be done by the farmer, providing he has the time. If left, it often means a delay and the expense of a visit to the blacksmith at perhaps a critical time. An elementary knowledge of tools, etc., and a little practice will lessen the blacksmith's bill. It is sound economy to keep all vehicles and machinery well housed when not in use, and all tools in their places to be immediately available when required.

An economic aspect of great importance but very difficult to define is the dividing line between efficiency and extravagance – as to when a farmer is justified in increasing his plant from a one-man outfit to say a two-man outfit,

either wholly or in part. The increase means added expense in plant, wages, insurance, etc., and before such a step is justified, one must be convinced that either there is enough work to keep the extra plant and labor employed, or that the risk of delayed seeding and harvesting, owing to time taken with a single plant is too great – having in view the principle that a crop should be got in and taken off at the ideal times or as near as possible. There is much of economic interest in this subject, which resolves itself into the question of whether farmers have the ideal plant for working a given quantity of land efficiently and no useless stock or unused plant. The latter may be called non-paying lodgers and therefore uneconomic. (*JASA*, March 1932, pp. 910-12.)

It could almost have been written today.

Mr R M Harvie, Appila Branch, took a similar line in his paper read at the Upper North Conference held at Booleroo Centre in July 1935.

Farming at present is a non-payable proposition and one is often at a loss to know just where economy begins or ends and whether money spent for extra labor or plant is really economy or extravagance. Unless the farm is too small, it pays to employ. Economy lies not so much in rigidly curtailing all expenditure as in spending wisely and putting money into farming operations that would show more profit. Very often it is false economy to persevere too much with old harvest machinery, when it has become badly worn and especially when the harvester becomes a wheat waster. A farmer could easily lose enough wheat to pay a deposit on a new machine. The same applies to employing men in the harvest operations who are careless about their work. Power farming is too expensive at the present price of wheat. During the last few years the horse breeders have had a good harvest, so by using horses and breeding a couple of foals each year one would again be economising. All harness leather should be well oiled with neatsfoot oil. The cost of the oil would more than doubly pay for itself. Good oil and a good oilcan should be a golden rule with all farmers. Oil is cheaper than bearings. It is no trouble to get a man to oil a machine well if he has a good oilcan to do it with, and a few shillings spent in that direction may mean pounds saved in bearings. It is often good economy to have an assortment of nuts and bolts on the farm, and a pound or two spent in that direction is a good idea. A good supply of scrap iron would be most useful at the farm smithy. A pound or two spent to secure an old machine at a sale would often return 10 times its value in bolts and iron that one could get out of them. A good set of wrenches and proper tools saves time when making repairs. One should always work with a system and keep up the seasonal jobs, especially field work. See that the harvester and binder are in perfect order before commencing work with them, because, really speaking, time is economy, more so when one loses the time during the harvest. A substantial economy could be effected by farmers

Members of the Appila Branch in 1987.
Back L-R: Messrs Wayne Zwar, Neil Lange (Sec), Philip Harvie, James Heaslip, Stewart Bottrill.
Third Row L-R: Messrs Paul Wurst (Pres), Colin Backer (Vice Pres), John Wurst.
Second Row L-R: Messrs Alan Woolford, Barry Harvie, Trevor Stevens, Malcolm Catford, Ivan Butterick.
Front L-R: Messrs, Sydney Catford, Arnold Wurst, Bruce Catford, Gordon Klemm.
Absent: Donald Bottrall, William Pech, Neville Klemm.

combining to buy their own necessities, particularly cornsacks. I believe if we were to send direct to the manufacturers it would be surprising what we could save. Super bags can be washed carefully and used for seed wheat or for oats or barley and maybe used for rugging sheep. Crushed grain for stock is much to be preferred in economy to the whole grain. The control of mice and rats, where possible, very greatly reduces the amount of waste on a farm. It is not always the hard worker alone who succeeds, but the man who thinks and works out his problems for himself. Stopping to think ... helps in the way of economy. (*JASA*, August 1935, p. 110.)

Farmers had to consider every aspect of their work if they were to survive the Depression. It is the small things which combine to make big savings, yet a sense of proportion must be maintained; the producer could fall into the trap of worrying about petty things and end up wasting time and money. Often the most economical way in the long run requires a certain cash outlay in the first place.

Farm finance was still a popular topic of discussion in 1938. Mr C. H. Tomkins of the Glencoe Branch gave a paper on *Farm Book-keeping and the part the Bank Plays* on 2 August. He recommended everyone to keep methodical records of income and expenditure, and stressed the importance of keeping such records up to date. He also explained the use of cheques. This concern with farm finances is just as important in today's rural recession as it was in the 1930s, although it is generally more complicated these days.

The subject of the Depression and Australian economy was a common topic on the agenda of Agricultural Bureau conferences and meetings during the 1930s. It was a useful forum for farmers to come to terms with their position, and thus learn to deal with it in the most effective manner. In his paper *Back to the Land* read at the Hills Conference at Mt Pleasant in 1931, Mr E. W. Mattner of the Balhannah Branch began by explaining the current financial position of the Australian nation.

> The outlook of the country is far from pleasing. We have a vast army of unemployed, and we are rapidly reaching the point where one-third of our men will be out of work – potential wealth producers with no prospect of a job. The conditions of our primary producers are parlous, in fact, perilous, due to the unforeseen collapse of world prices. During the past 10 years Australia has borrowed approximately 800 millions – the prices for our exportable produce during this period have been relatively high; so that our apparent income appeared large, and the people were lulled into false security.
>
> The first cause of the crisis today is the accumulated debt of £1,200,000,000 – a debt ... equivalent to £1,100 for each family of five ... Prices for our primary produce have slumped – loan market closed – and we look in vain to our secondary industries to bridge the gulf. For nearly 20 to 25 years these industries have had a protective tariff, and behind this wall we have piled up uneconomic industries and an industrial system which cannot conform to the drop in world prices. (*JASA*, September 1931, pp. 215-6.)

He went on to demonstrate the importance of agriculture in the Australian economy, particularly in South Australia where there was no heavy industry at the time apart from Holden's factory and the Port Pirie smelting works. He saw the answer in developing the surveyed, but as yet undrained, land in the South-East. The Government could implement a plan whereby the unemployed did the work necessary to develop these areas in return for their keep and clothes. Their pay would be deferred and later negotiable on that land. Although the conference did not entirely applaud his idea, it is interesting to see someone searching for practical and tangible ways of coping with these problems.

A discussion of how best to face the Depression took place at a combined meeting of the Warramboo and Kyancutta Branches in August 1931. Here the emphasis was on the producer relying on his own efforts, since the Government was in no position to aid them. Mr E. Dyke of the Kyancutta Branch opened the meeting with a paper recommending certain measures.

> In connection with the present depression it appears that the producer has to rely on himself almost entirely, because the Government cannot assist. Still, we should do our best to try and get a sales tax on flour consumed in Australia, the money raised thereby would help the farmers a little and would make very little difference to the cost of bread, cost of making up and delivery being some of the chief items in the price of bread. It does not seem likely that we shall get any reductions in rail freight. Board freight on super – one of our big items of expenditure – does not seem to vary much in price, although wages are inclined to drop. In connection with super, I think we should push the matter of getting rid of the local agents'

commission if we order direct from the firm. As to cropping, it seems a good proposition to fallow more and crop a smaller acreage. Grow more oats for early sheep, feed and raise more lambs for export. Everyone is not able to make the best use of their land at present, because they have not enough sheep-proof fencing, and they have to keep on cropping the same land frequently to get shoots under control. Butter is very cheap locally at present, but as the Port Lincoln branch of the Government Produce Department is shortly opening up to take cream, it should make things a little better. Eggs seem to be in even a worse position, but we may look to the same quarter for help before very long. Also at some future time we shall have a sale there for pigs, but at present the supply is not very large, and probably we shall have to do something to provide the required class of pig for the trade. Much more could be done in connection with the growing of vegetables for home use and sale to those who are unable to grow their own, and most farms could establish a small fruit garden. We have to grow everything possible that we use, thereby saving money, for money saved is money earned. Something might also be done by co-operating in furnishing farm requirements. (*JASA*, October 1931, pp 390-1.)

A lively exchange followed between the members. Mr Rundle of the Warramboo Branch reminded those present that sidelines on the farm could make an enormous difference to their situation and were well worth considering.

Pigs were an ideal sideline in many cases. Farmers could keep them in most areas of the State, particularly if they had dairy cows as well. The waste products from the dairy, such as skim milk, made excellent pigfeed. Mr T. R. Welbourne of the Narridy Branch offered advice on pigs at the Mid-North Conference. He recommended keeping Tamworth pigs rather than Berkshires, which had been popular in previous years. Alternatively, the Canadian Berkshire crossed with a Large White was a suitable baconer for export. Baconers would be ready for the abattoirs 20 weeks from birth if they were properly cared for. He suggested the following programme of feeding:

> The following is the method I adopt to put baconers on the market in 20 weeks. Feeding six pigs in a sty, they get three gallons of skim milk morning and evening, with as much soaked barley as they will comfortably clean up. Midday, soaked barley and a little meat-meal. When the pigs are 15 weeks old the meat-meal is increased to 5 per cent.

Pigs were recommended as an ideal sideline at this time.

> The cost of meat-meal is practically nil. The pigs fatten on 4½ bags of barley, whereas, without meat-meal, 5 bags are required. Today half a bag of barley is worth 3s 6d, and it would not cost that for meat-meal per pig.
>
> In a Victorian test four pigs were put in a sty and fed on wheat. Four more were fed on barley two-thirds and wheat one-third, with free access to meat-meal. In 90 days the pigs fed on the mixture put on 100 lb more than the pigs fed on wheat alone. The cost per pound of bacon was the same, as the mixture-fed pigs ate more, but to be able to increase the weight by 25 lb per pig is a consideration worth noting.
>
> The New Zealand experiment was with regard to Tamworth piglets running with the mother. One litter was kept shut up, while the other was allowed grazing. The closed pigs at eight weeks averaged 22 lb and the grass-fed ones 35 lb. (*JASA*, May 1935, p. 1,268.)

At the time of writing, good baconers brought approximately 50s per head.

On 18 February 1932 the River Murray Swamp Settlers held their first conference. Since the floods of 1931, settlers in the irrigated Lower River swamp lands now had to replant their acreage. The members of the Agricultural Bureau met with representatives of the Department of Agriculture, Waite Research Institute and the Council for Scientific and Industrial Research. Mr P. J. Baily, member of the ABA, took the chair. In his preliminary address he discussed drainage, a subject of major importance to irrigated farming. He reminded his audience that it was a mistake to irrigate any more than necessary, for waste water

must only be pumped back to its source. Prof. Perkins then opened the conference.

The first paper for the day was read by Dr A. E. V. Richardson of the Waite Research Institute. He spoke on *Pasture Improvement*, and his remarks were supported by Mr Trumble, one of his colleagues. Mr W. J. Spafford, Deputy Director of Agriculture, then discussed *The Seeding of Permanent Pastures. The Soils of the River Murray Swamp Areas* was the title of a paper by Prof. Prescott, also of the Waite Institute. His comments largely related to a publication issued by the Council for Scientific and Industrial Research. The last paper before lunch was delivered by Mr H. B. Barlow, the Chief Dairy Instructor, on the subject of *The Management of Dairy Herds on Irrigated Areas*.

The afternoon was occupied with a Free Parliament during which a variety of topics were discussed by Bureau members, and a lecture, accompanied with lantern slides, on the pig industry. This was given by Mr R. B. Kelley, who attended the conference on behalf of the Council for Scientific and Industrial Research. Those present decided the conference was a great success, and resolved to make it an annual function at Murray Bridge.

Heavy frosts became a major problem for fruitgrowers in the Barossa Valley in this period. A committee to find ways of combating frost was elected by the 1933 Non-Irrigated Conference. On 30 October 1933, the first save was made on one acre of apricots by using Lard Pail Type Heaters burning oil. Soon there were over 10,000 of these heaters in the district, and the South Australian Frost Combating Committee continued to function for many years.

Country people are known for their generosity, particularly when neighbours are in trouble. The Agricultural Bureau is made up of such people, and evidence of this was seen in November 1931 when the Mundalla Branch organised a working bee to clear away the ruins caused by fire on the farm of Mr R. Wiese. Thirty-eight men turned up to work and prepared a site for the new homestead. They carted and stacked 24,000 bricks and crushed 100 yards of stone that day.

Debates became a popular form for running meetings of the Agricultural Bureau during this period. Not only were they an entertaining way of delivering informative speeches, but they also provided some variety in the branch programme. Members of the Wilmington Branch debated whether wheat or wool was best for their area. Messrs M. Christopherson and G. A. Stephens argued in favour of wheat over the sheep supporters, Messrs J. A. Hampel, F. Scott and G. Fraser. The adjudicator, Mr W. Zimmerman, decided in favour of wheat growing, but only by a narrow margin. Mr Christopherson had described the enormous benefits accorded the Wilmington district by the wheat industry; the Government had built a railway line to the town to transport the grain, a flour mill had been erected, and the district grew large enough to support its own butter factory and an implement factory. In dry seasons the sheep owners relied on cereal growers for chaff and hay to feed their livestock. To counter these arguments, the opposition pointed out the economic aspects of sheep versus wheat, quoting a profit of £69 5s in favour of sheep. The long term

Members of the Mundalla Branch at a working bee on Mr R Wiese's farm, 1931.

arguments won the day, however, and wheat growing was deemed better than sheep grazing when the whole community was taken into consideration.

The Coonalpyn Branch debated the pros and cons of mouldboard ploughs and disc implements. A team made up of Messrs C. T. George, E. Fox and H. Mincham debated in favour of mouldboard ploughs, while Messrs C. Todd, sen., C. L. George and R. V. Potter spoke of the value of the former.

> Chas T. George stated that with the disc cultivator, one could go over the land in half the time taken with the plough and with equally good results, because it would not choke with rubbish, it would chop down the shoots, work the land to a finer tilth in the two operations, was lighter in draft and was altogether the better machine in scrub country.
>
> C. Todd, sen., said that the stump jump mouldboard plough, when set so as to run true and worked under the conditions it was built for, gave excellent results. It was ideal for clearing out the bottom of the furrows, leaving no ridges. All the ground was moved and well turned over, leaving a level bottom, which the disc implement would not do. The plough would pull more stumps than the disc and in ploughing grass and weedy land, the mouldboard turned the soil well over, covering both grass and weeds. Both types of plough were needed on a scrub farm, because until the land was well cleared, there was work suited to each.
>
> E. Fox, sen., stated that if it were not for the disc plough, hundreds of thousands of acres of mallee land would still be in a virgin state. In their district, if the mallee was rolled directly after seeding and burnt in March or April following, and then after seeding, the land was worked three times with a light disc implement and sown early with Algerian Oats, there would be very little trouble in getting a fire over the stubble . . . In clearing heath land, one ploughing with a single jump disc plough, heavy type, would not clear the land, but would leave it in such a state that with ordinary care the yaccas were not hard to deal with. No other plough would do that . . . The disc did turn the soil over as he frequently noticed on the surface with a piece of clay which had certainly come from the bottom of the furrow . . . C. L. George stated that in new mallee country, the ground was a network of roots from 2 in to 4 in below the surface, and the share mouldboard plough got under the roots with the share and tore them up, thus giving the sown plant a better chance of moisture than among a network of roots. When a share plough had been used for breaking up the soil, the wheat or oat plant would grow right up to the root of the mallee, but when disced, nothing grew within a foot or two of the stump. The disc would not destroy the network of running roots, but merely jumped them if they were of any size. With the mouldboard better work was done in slicing the soil clean from the bottom of the plough and turning it right over, thus helping to kill most of the rubbish . . . H. Minchan stated that he used a single jump disc plough as a means of pulverisation of the soil and it could not be excelled. He put it into the ground down to a foot deep, and by that method wrenched out practically all the yacca and small bushes which a share plough could not remove. A disc plough was able to work land that a mouldboard plough would not be able to deal with.
>
> R. V. Potter stated that the mouldboard plough left land a far more level seedbed. In the breaking up of ley land it left the furrows open to a certain extent, which allowed the air to percolate through the soil, whereas the disc threw down the furrows on top of each other in such a manner that the soil settled down and allowed no aeration. (*JASA*, September 1935, p. 282.)

The Agricultural Bureau members then voted for the winners – 19 in favour of mouldboards and only nine in favour of discs.

The Milang Branch debated against a team of Messrs I. Echett, M. Pearce and S. Cheriton from the Belvidere Branch in March 1934. Their subject was *Protection versus Free Trade*. The Milang team, in favour of Protection, consisted of Messrs Beasley, A. Mattison and L. Young. They were very evenly matched – the adjudicator finally awarded 82½ marks to Milang and 82 points to Belvidere. The friendly rivalry resulting from such a meeting resulted in many of the Bureau members considering the advantages and disadvantages of economic policy and realised how such political decisions directly affected their own situations.

A conference of Dairy Producers was convened at Mt Barker on 12 May 1932. The Department of Agriculture organised the meeting for those involved in the dairy industry in the Hills and Lower North Districts to discuss issues of mutual concern. It was obviously something which many of the producers felt was necessary, for over 150 delegates attended. Members of Agricultural Bureau branches came from Mt Barker, Lyndoch, Jervois, Murray Bridge, Longwood, Gawler River,

Rosedale, Milang, Scott's Bottom, Brinkley, Hartley, Strathalbyn, Balhannah, Clarendon, Mt Compass, Finniss, Watervale, Mt Pleasant, Tweedvale, Cherry Gardens and Langhorne's Creek. Eleven officers of the Department of Agriculture, Roseworthy Agricultural College and the ABA were also present.

The opening address was delivered by Hon S. R. Whitford, Minister of Agriculture. All of the other papers were given by members of the branches, and the officials were present to give advice on the various questions discussed. Mr J. R. Coles of the Longwood Branch began with a general paper on dairy farming. This was followed by *Feeding and Rearing Heifer Calves* by Mr S. Simcock of the Rosedale Branch and *Factors which lead to the Manufacture of Choice Butter* by Mr J. H. Dawkins of the Gawler River Branch. Then it was time for Mr Townsend of the host branch, Mt Barker, to deliver his address on *Ensilage*. This was followed by Mr C. Lund of the Strathalbyn Branch discussing *The Cream Separator*. Finally, the last paper was given by Mr C. Howard, again of the Mt Barker Branch, who spoke on *Dairy Hygiene*.

The competitions so popular in the 1920s continued through the difficult years of the Depression. Potato competitions were organised at Mt Gambier and Lobethal. The Mt Compass Branch arranged a contest for school boys in 1932. The winner was Linton Jacobs, only seven years old, who secured a return of 217 lb of potatoes from 1 lb of seed potatoes. This consisted of six Carmen No II Potatoes cut into 50 pieces and planted on a plot 8 yards by 6 yards in the first week of November. It was peaty soil which he watered once and applied fertilisers – a kerosene tinful each of abattoirs blood and bone No. 1 manure and superphosphate (45%), 1/3 tin of sulphate of ammonia, and 3 bags of fowl manure. The closest competitor was Norman Anderson who managed to produce 209½lb from his plot.

The Yeelanna Branch reported an interesting pregnancy test for cows in April 1933. Mr Adams of the Department of Agriculture suggested placing a drop of milk from the cow in question into a glass of water. If it sinks to the bottom, the cow is in calf; if not pregnant, the milk will simply mix in with the water.

Low prices for produce persisted throughout the '30s. Those producers growing fruit and vegetables were very hard hit. In 1933 the Government decided to subsidise all artificial manures used for products other than wheat. It was hoped that, by making this exception, land suitable for other crops would be put in with alternatives. Thus farmers were encouraged to diversify and move away from the already over-supplied wheat market. The subsidy amounted to 15s. per ton for artificial manures bought in the period 1 December 1932 to 30 November 1933.

Prof. Lowrie died in June 1933. He had devoted most of his working life to agriculture in South Australia and had been responsible for many advances in his field of endeavour. His involvement with the Agricultural Bureau dated from its earliest days. Although he resigned from his official duties in 1914, his interest in the activities

The Mount Compass Potato Growing Competition, 1932. Winner – Linton Jacobs (left) and Second – Norman Anderson.

The house, shed and tank supplied by the Employment Promotion Council at time of Settler taking possession.

of the Agricultural Bureau and the Department of Agriculture had continued.

On 5 September 1933, the Lone Gum and Monash Branches called a special combined meeting. The members agreed it was necessary to take measures to prevent frost damage in their area, since a great deal of their produce was spoilt in cold months. A local committee was appointed to devise a plan of action: Messrs Maddern (Chairman), Telfer (Secretary), Traeger, Ellis, Cocks, Soderberg, Elleway, Brown, Thomas, Whitelaw, L. Bollenhagen, McLaren, Barnes and Lock. The secretary sent the following outline of their scheme to the *Journal of Agriculture of South Australia*.

> Definite data will be kept throughout the frost danger period, and "smudging" will be tried out on a systematic scale. Wet and dry bulb thermometers have been provided, from the readings of which early warnings of danger will be given at 9 o'clock at night. The committeemen who represent the groups of settlers in various low-lying hollows of the district will be notified of the danger, and, having a roster made out, two growers will then keep watch on their dry bulb thermometers. Should the temperature drop to 31 degrees, all growers in the group will be called out to stand by, and then should it drop to 30 the signal would be given to light the smudge fires and so create a dense blanket of smoke, with the idea of preventing the radiation of further heat, and so it is hoped prevent or minimise frost damage. Various methods of creating the smoke will be adopted, chief being the use of residue from the Cobdogla pumps mixed with old stems, etc., and will be kept, from which it is hoped quite a lot of useful information as regards the efficacy of the idea of smudging will be obtained. (*JASA*, January 1934, p. 744.)

In June 1934 the *Journal of Agriculture of South Australia* printed a report on the Land Settlements Committee by W. J. Spafford, Chairman of that body. The Employment Promotion Council had been set up on 5 September 1932. The Commonwealth Government had granted £25,000 for the use of this presence, provided the State Government subsidise it pound for pound. Of this sum, £10,000 must be used for developing mining, and the rest for land settlement. Thus the Land Settlement Committee was established as an important instrument of the Employment Promotion Council.

It was decided that the best way to set up families on the land with a reliable income would be on small blocks for mixed farming. The emphasis should be on egg production, aimed at the English market. This way the new sort of production would not interfere with existing local industries. It would be the cheapest way to settle farmers and promised quick returns to enable the men to become independent as soon as possible.

Once the decision on what type of farming was best for the programme was made, the next question was where? To ensure successful egg-laying they needed to be in areas where green feed was readily available all year round. The heavy rainfall areas of the Adelaide Hills was ideal.

Here summer fodders such as Chou Moellier, Silver Beet, Mangels and Millet could be grown to tide hens over the dry season. It was also necessary to choose an area covered in scrubland so that trees would be availabale to provide timber for building and fencing. Finally, the areas decided upon were:

Echunga	12 blocks	91 people
Jupiter Creek	1 block	
Bridgewater	4 blocks	27 people
Willunga Hill	19 blocks	142 people (this settlement was named 'Yundi', the Aboriginal name for 'feathers')
Meadows	24 blocks	182 people

Once the block had been surveyed, settlers went to the areas and worked together to clear sites for buildings, improved access roads, bridged creeks and cut fence posts. With the groundwork done, a ballot for blocks was taken and settlers given the opportunity to exchange with each other if desired. Rent was fixed at 2½% of land value. In the first year, one fifth of the annual rent was paid, in the second year, one-third of that sum and in the third year, two-thirds was to be paid, before the full amount was due in following years. The Government supplied equipment, livestock and erected buildings.

The simplest of dwelling quarters have been provided, consisting of three roomed habitations of wood and galvanized iron, with lean-to verandah, with the rooms unlined except for the ceilings, but with boarded floors and fireplace and cooking stove forming parts of the home. Close to the cottage is a galvanised iron shed and 2,000 gal tank, and somewhat removed, a closet.

For the proper management of the fowls, four poultry houses, capable of carrying 600 laying hens, have been erected to the specifications of the Government Poultry Expert (Mr C. F. Anderson).

All other buildings, including cellar to hold eggs, cow shed, pig sties, and other sheds are provided by the settlers from materials on the holdings.

Equipment supplied and work done

The Employment Promotion Council has made provision to plough thoroughly 1 acre of gardening land, after it has been properly cleared, so that summer growing green fodders and vegetables can be grown, and arranges to have 2 acres seeded down with Subterranean Clover and Superphosphate to provide greenfeed for a cow.

Ordinary gardening, fencing and scrub-clearing tools are advanced, as well as greenfeed cutters, egg scales, and other poultry-handling appliances.

Seeds of vegetables and green fodders, and a few fruit trees are supplied to make certain that the homes are provided with vegetables and fruits, and that the greenfeed required by the livestock is produced on the holdings.

Sufficient materials to fence the blocks, and provide paddocks for big stock as well as some netting to protect the gardens from rabbits are forwarded to each man.

Foodstuffs for the poultry are provided from the Council's funds for at least six months after the pullets are supplied.

Where settlers prefer sinking for water sufficient rope is provided to assist in the work, otherwise contracts are let to sink earth dams to hold water.

Livestock provided

The aim of the Council has been to supply each settler with 30 to 40 laying hens as soon as his poultry-houses and yards are ready to receive them, so that his family will have a supply of eggs for home use.

During the first spring after occupation an effort is made to secure 400 White Leghorn pullets, eight weeks old, from the July-September hatching, and to add another 200 to the flock during the second year.

When sufficient greenfeed is available to do away with the need of providing foodstuffs, a cow is supplied, and when the cow is in occupation, a weaner pig is advanced every three months for one year, making four in all. (*JASA*, June 1934, pp. 1,380-2.)

The total expenditure on each settler is as follows:

Actual Expenditure of an Echunga Settler Typical of that Area

	£	s.	d.
Dwelling (Shed, Tank, Closet)	97	8	0
Ceilings (Timber, Small fluted iron, nails)	4	3	2
Ridge Capping (Nails)	0	7	2
Poultry Houses	69	10	0
Sand for floors	0	17	6
Timber for gates	0	9	5

	£	s.	d.
Feeding troughs	1	15	6
Netting	7	1	1
Guttering	3	5	2
Tools			
Wheelbarrow	1	5	10
Mattock and handle	0	4	6
Spade	0	6	10
Hoe and handle	0	5	6
Rake	0	3	1
File	0	0	8
Fencing Bar	0	7	6
Maul Rings	0	0	6
Greenfeed cutter (cartage)	1	17	5
Broom	0	2	10
Axe	0	8	8
Egg scales	0	16	4
Egg cases (3, cartage)	0	19	4
Stencil (share)	0	0	10
Wheel hoe and seeder	3	10	6
Seeds, Manures, Trees, etc.			
Superphosphate and sulphate of ammonia	1	7	3
Seeds (various)	0	18	0
Fruit trees	0	7	3
Subterranean Clover	1	6	6
Fencing			
Carting posts	0	16	9
Netting	2	13	9
Wire	1	19	5
Poultry			
30 hens (cartage)	5	14	5
300 pullets	52	10	0
Poultry Feed			
Foodstuffs (some cartage)	34	5	10
Shell grit	0	1	9
Lucerne chaff	0	10	6
Medicines	0	7	6
Shifting Furniture	1	11	5
Miscellaneous			
Lease fee, rent, etc.	2	2	6
Insurance	0	11	9
Subscription to Red Comb (share)	0	1	7
Egg-laying Competition (6 birds)	2	5	0
Ploughing	1	2	6
Rope	0	3	7
Paris Green	0	2	2
Cartage (not otherwise accounted for)	1	4	1
Odds and Ends	2	7	6
	£309	18	3

Necessary Expenditure Still Required

	£	s.	d.
Yorkshire Fog seed (not yet charged)	0	3	0
Seeding Subterranean Clover (2 acres)	2	0	0
Pullets (300 @3s 9d, including cartage)	56	5	0
Cockerels (3 at 7s)	1	1	0
Cow	5	0	0
Pigs (4)	4	0	0
Fencing materials	2	10	6
Tar (4 galls)	0	3	6
Fruit Trees	0	5	0
Egg cases (3)	1	0	0
Seeds			
Subterranean Clover (12lbs)	0	12	0
Vegetable	0	7	0
Manures (2 bags super)	0	14	0
Foodstuffs (may be required)	10	0	0
Cartage	1	0	0
Scythe, handle and stone	0	14	0
Rent (30s for two years)	3	0	0
Insurance (10s for two years)	1	0	0
Red Comb Association – Subscription (2 years)	0	5	0
	£90	0	0

(*JASA*, June 1934, pp. 1,386-8.)

So, for under £400 each, 60 families were given the opportunity to make a fresh start in life on the land.

In 1935 the Government again subsidised the Wheat Crop competition it had originally organised 10 years previously. Subsidy had to be withdrawn in 1931 and 1932 because of the dire financial position in which the Government found itself, and the South Australian Farmers' Co-operative Union had come to the rescue in 1933 to ensure that the competition was not abandoned. The Championship award first offered by the Royal Agricultural and Horticultural Society in 1927 also continued to be part of the Competition. It had been a good season, and the following year a Millers' Prize was also awarded as part of the Wheat Crop Competition.

The Millers' Produce Company of South Australia made a donation of £5.00 to each of the districts conducting a crop competition. However, five varieties would not be eligible for their prize – Gallipoli, Free Gallipoli, Ghurka, Waratah and Nabawa. The millers disliked these "weak" wheats and felt they lowered the standard of Australian wheat. If one of these varieties was awarded a prize in the Government competition, the next best would be the winner of the Millers' Prize. It was up to the District Committee to decide whether all of the prize money should be awarded to the winner, or be split into first and second prizes.

Tobacco plants grown by Messrs Johnson Bros, Comaum, 1935.

Many trials had been undertaken to grow tobacco in South Australia over the last 50 years. It had not proved to be a great success, although in 1935 experimental plots were established in the South-East, Adelaide Hills, Barmera, Berri and Murray Irrigation Areas. Virginian types seemed best suited to South Australian conditions. However, Downy Mildew and Blue Mould attacked the plots in the South-East and Hills districts. Later, Mr R. Guthrie of Blewitt Spring Branch reported on the possibilities of tobacco growing at the McLaren Flat Conference of 1937. Of the 300 acres then planted in South Australia, 150 were in the Hills area. He claimed it produced a profit of £80/acre. However, the land could produce other crops more profitably, and interest in tobacco gradually faded away in South Australia. With improved transport it could be imported from other countries more cheaply than it could be grown here.

In 1935 the Government agreed to pay a bounty on oranges to aid the export industry. Two shillings per case was to be paid on exports to the United Kingdom during that year. However, it would not apply to Navel oranges shipped after 15 July. Only the best quality fruit would be eligible for the bounty and it must be properly packed and graded. Despite the stringent regulations, it was a help to citrus growers at this difficult time.

Skeleton weed was reported to have appeared in New South Wales in 1935. The ABA discussed this worrying occurrence at their June meeting.

> Mr Dawkins drew attention to the damage that was being done to wheat lands in New South Wales by Skeleton Weed, and suggested that steps should be taken to guard against its introduction into this State. Dr Richardson reported that the C.S. & I.R., in conjunction with the New South Wales Department of Agriculture, were making investigations at Wagga concerning the control of this weed. It was decided that Mr Clarke, Botanist at the Roseworthy Agricultural College, should be asked to contribute an illustrated article dealing with Skeleton Weed for publication in the Journal. (*JASA*, July 1935, pp. 1,541.)

Skeleton weed is a native of Central Russia, and was originally brought to Australia around 1917 in bales of hay. Its history in South Australia is documented by Rex Penna.

> It was discovered in South Australia in 1947 at Parilla, and by 1949 had spread to 63 properties. By 1951 it had covered 22,000 acres and in 1961 crossed the River Murray to be reported at Clare. Eyre Peninsula suffered the weed in 1962 and in 1965 it was Yorke Peninsula's turn. In 1979 skeleton weed was reported to be spreading in the local [Nantawarra and Beaufort] district. (Rex Penna, Fertile Valley to Open Plains: The Nantawarra and Beaufort Districts (*Frewville: Peacock*, 1982, p. 93.)

For many years farmers all over South Australia had requested that the Government provide veterinary services in rural areas. In 1935, the ABA reported that nine resolutions to this effect had been passed at Agricultural Bureau Conferences over the last two years. The Advisory Board appointed a committee to look into the matter. This group recommended that the State be divided into five districts – Central, South-East, Murray Mallee, Eyre Peninsula and Northern. Each should have a permanent veterinary officer

resident at a centre to be decided upon. These officers should be under the control of the Chief Inspector of Stock in the Department of Agriculture in Adelaide. The report was submitted to the Minister of Agriculture and in due course the veterinary officers were appointed.

Pruning competitions continued to be an important part of the agricultural calendar in the fruit tree and vine growing areas. The Royal Agricultural and Horticultural Society managed a competition for boys and youths at Reynella until 1931 when the organisation was taken over by the McLaren Flat Branch of the Agricultural Bureau.

The River Murray Pruning Competition was also in full swing at this time. In 1933 W. Langdon Parsons had donated a silver cup for a competition between districts. The ultimate winner was to be the most consistently good pruner over three years. The winners were

1933	E A Liddicoat, Moorook	548 points
1934	H M Perkins, Berri	539 points
1935	C Curtis, Waikerie	549 points

The overall winner in 1935 was Mr C. Curtis with 1,618 points followed closely by Mr H. M. Perkins, with 1,615 points. The third on the list was Mr A. Wedd of Mypolonga with 1,613 points.

The Gumeracha Branch held its first District Pruning Competition a few years later, on 14 July 1938. Jonathan apples and duchess pears were dealt with on the property of Mr J. B. Randell. About 60 gardeners followed the 13 contestants, offering free advice at every opportunity. The Gumeracha Horticultural and Floricultural Society presented a cup to Mr H. Stephenson for the highest aggregate score. In the apple section, Mr J. Hill was awarded first prize, and Mr A. Joyce won the pear section, both of whom were presented with trophies by Mrs D. C. Norsworthy. The judge, Mr E. Leishman, remarked that the general standard of work was very good, but felt there was a tendency to prune the apples a little too hard.

The River Murray district had developed quite a reputation for its vine fruits by this time. Mr F Lewis described the treatment of Gordo vines, which produced fine dried fruit, at the March meeting of the Ramco Branch in 1935.

> There are four contributing factors – suitable soil, age of vines, method of pruning, and drying. Practically all the Gordos in Ramco that are producing quality fruit are grown on a fairly steep, loose, sandy northern slope, originally big pine and mallee country with a natural drainage. They were planted in the early days of irrigation on the Murray and are about 30 years old. For some years they were pruned on the Gooseberry Bush system, which produced quality, but not quantity and later, after becoming well established, were trellised by forming a rod on each side of the "crown" on a low trellis, Espalier style, and gradually cutting out the old spurs on each side of the row. This of course left a lot of large wounds which have never healed over and are now riddled with white ants, but this does not seem to affect the vigour of the vines ... Unfortunately, Gordos ripen rather late and growers with other varieties leave them until their racks are cleared of currants and sultanas and they show a high Baume test ... Gordos are practically all dipped in the old style boiling caustic; any other method tried so far is too slow in drying so late in the season. They should be dried in the open to get as much sunlight as possible; in fact I have seen first class fruit dried on racks that had no provision whatever for covering from rain or dew. Much of the sugaring trouble is caused through rack drying ... I have had very little experience in manuring Gordos and in 28 years have applied fertiliser only twice; once with Bone Super and once with Complete Vine Manure, and in neither case did the returns show any improvement, but wherever Stable Manure was used, there was a distinct improvement. About three years ago a lot of the vines "went back" so I gave them an application of Sulphate of Ammonia at the rate of 1 cwt to the acre and the same amount the following year. This brought the vines back to normal and I am now harvesting a record crop. (*JASA*, February 1936, p.992.)

Vineyards were the topic for discussion at the January meeting of the Light Pass Branch. Mr P. Mader gave his opinions on the best way to go about establishing a vineyard.

> Select and root your own cuttings, because if they are purchased from the nursery the varieties are often mixed. The cuttings should be about 16 in to 18 in long and prepare the planting trench – which should be 2 ft wide and 2 ft deep – with a spade in preference to the plough. Fill in the trench – with 1 ft of earth, then set the cuttings in position, leaving one bud above ground level, and press the soil with the foot very tightly around the cutting. Plant the cuttings in August in order that the land will be well soaked before the end of the winter rains. If the soil becomes dry, give an occasional good soaking with water. Prepare the site on

which it is intended to make the vineyard some time ahead of planting so that weed growth will be reduced to a minimum. In marking out the block, a wire is preferred to string, because the former does not get blown about with the wind. Keep the top soil from the holes separate from the subsoil so that when planting the cuttings the surface soil can be placed around the roots of the cuttings. The holes should be 1 ft squared by 18 in deep. Prune the cuttings back to two buds, removing as well all the top roots, leave the others about 4 in long. (*JASA*, February 1936, p. 992.)

Mr E. G. Lehrman then declared that ploughing was one of the most important operations in the cultivation of a vineyard or orchard. This is no longer performed today, but at the time was considered essential.

The River Murray district was also well-known for its citrus fruits. It was an area capable of producing very high quality fruit, but not all orchardists knew how to get the best out of their trees for the export market. Mr E. R. Moss of the Berri Branch aimed to set this to rights in his paper at the Renmark Conference in 1936. Irrigation, cultivation and manuring are the three most important factors affecting the quality of fruit. The soil must be kept moist at all times, he began, however,

> A word of warning must be sounded here: with the extra irrigations the water tables may be raised to a dangerous level, so that it is necessary to be very careful not to overwater. At each irrigation, as many furrows as possible should be run down each row, all the furrows flowing simultaneously, which means plenty of outlets in the channels. The water on the majority of land should not be allowed to run for more than six hours per row.
>
> One good 6 in ploughing of all the land, i.e., down the rows and another ploughing across at the end of July, is all the ploughing that is necessary, providing that the cultivator is put down as deeply as possible after each irrigation and rain during the summer. Leave the land alone and do not cultivate during winter; that is until ploughing time. This will give weeds – or if cover crops have been planted – a chance to grow, and will give something to plough in for humus.
>
> Humus is an exceedingly vital element necessary in all Murray soils, and humus becomes

Furrow irrigation of citrus trees on a River Murray irrigation block.

quickly deficient under hot summer conditions, unless it is constantly being put back in some way.

The growing of cover crops between the citrus is the cheapest form of supplying humus until the trees become too big and it is practically impossible to grow cover crops on account of robbing by the trees and the lack of sunlight which is able to reach the crop. When cover crops can no longer be grown, humus must be supplied in some other way. Stable manure if put on at the rate of 10 to 15 tons to the acre, is excellent for this purpose. Sheep and poultry manure applied at the rate of 8 tons to the acre are [sic] also good, but it is often difficult to obtain these manures in sufficient quantities to be of any value. Lucerne and straw or any rubbish that can be put into the land and rotted down, will help build up the humus in the land. (*JASA*, August 1936, p. 53.)

Blemishes from insect damage must be avoided as far as possible. This could be done by fumigating the trees when pests appear. The other cause of blemishes is wind; the fruit rubs against twigs and branches leaving clearly visible marks. The only way to avoid this is to plant breakwinds to shelter the trees as much as possible, and prune off all deadwood. This way, leaves provide protection for a greater percentage of the limbs. Red scale and sooty mould were the two main diseases attacking the fruit and spoiling its appearance. Fortunately compulsory spraying in the Berri area kept them to a minimum.

Prof. Perkins retired from his position as Director of the Department of Agriculture in May 1936. He had spent 44 years in the South Australian public service, 22 of them as Director of Agriculture, and 10 years before that as Principal of Roseworthy Agricultural College. A great deal of his work related to vine growing and wine making, but his interests encompassed the whole gamut of agriculture in South Australia. He foresaw the problems which would accompany a sudden switch from horses to tractors, and warned farmers to go about this momentous change cautiously. He wrote prodigiously, his articles covering every imaginable subject in agriculture. He was particularly interested in agricultural economics in the last year of his work. His position was taken over by Mr W. J. Spafford, also a very talented man, who had a deep understanding of the problems besetting farmers and a practical approach to solving them.

The *Journal of Agriculture of South Australia* underwent a renovation at this time. A new glossy format was introduced in the August issue under the title *The Journal of the Department of Agriculture of South Australia*. The space allotted to Branch reports was reduced, and more room used for long articles and papers given at conferences.

By 1937 wheat prices finally began to recover. Mr C. E. Heinrich had discussed the relative profits of wheat and wool at a meeting of the Kilkerran Branch. Even with wool paying only 1s per pound, which resulted in a small profit, it was still a better proposition than wheatgrowing. At the same time eggs fetched 10d-1s per dozen. The Depression was clearly evident for all to see as farmers battled to survive. Farmers obviously needed to increase production while keeping down costs under these conditions. The Government Research Stations did all they could to discover new ways and means of doing just that. However, they had limited space and their soil types and growing conditions were not always representative of the entire area. Members of the Agricultural Bureau often conducted experiments on behalf of the Research Station (under their supervision) to enable the scientists to collect more complete information. This way, not only did the research progress more quickly, but the producers also saw for themselves the value of new ideas. Sometimes the difficulty facing Government Research Stations is getting the information from the scientific experts out to the farmers. The research was, after all, intended to improve practical farming. The Agricultural Bureau itself also served to bridge this gap.

One of the important areas of research was in pasture improvement. The search for a good livestock fodder led to the discovery of Wimmera rye grass. Experiments had been carried out all over the State when this grass was seen to be so successful in the Wimmera district of Victoria. It

Kilkerran Branch Committee, 1987. Back L-R: Messrs Stewart Moody, Ken Heinrich, Neil Kohlhagen. Front L-R: Messrs Robert Davey, Lyall Arthur.
Absent: Philip Heinrich.

The Shoal Bay Branch inspecting pasture on a Field Day, 1937. Dots indicate (L-R) Mr Will Turner (Chairman), Mr G. A. Turner (whose pasture is being inspected), and Mr R. C. Scott of Department of Agriculture.

appeared to be particularly useful in the low rainfall areas of Eyre Peninsula and the Murray Mallee. Mr J. J. Ferguson of the Parilla Well Branch reported on his experiments with Wimmera rye grass at the Lameroo Conference in 1937.

> Wimmera rye grass, although an annual, is a remarkable grass for re-seeding, even though it may be grazed heavily. With rotational wheat-growing and adding a small quantity of seed with the wheat crop prior to being used for pasture, this grass remains dominant over other grasses. Rye grass produces a greater bulk than natural grasses although it may be later in the season in getting firmly established, [but] with good spring rains, it will give green feed as late as November. At all times it is very palatable to stock, even after maturity. Experience has shown that it competes successfully with Barley grass . . . Wimmera rye grass is immune to fungus diseases to which wheat plants are susceptible, namely, Smut, Flag-smut, and Take-all . . . To have Wimmera rye grass as a pasture for an indefinite period, it must be cultivated at least every second year. When this is done and the seed sown with some cereal such as oats, rye, or barley, with superphosphate, good results are obtained. For sowing seed with a wheat crop, approximately 1 lb is a very economical application to establish this plant. Like cereals, Wimmera rye grass responds accordingly with the quantity of superphosphate applied. It is a valuable plant for the prevention of soil erosion of pastures on account of its splendid root system, and eventually it will be used extensively and become a National asset in helping to solve the soil erosion problem. (*JASA*, August 1937, p. 60.)

Sheep grazing on Chou Moellier, one of the first pastures introduced by the Central Bureau.

Similar success was experienced by Mr C. L. Bagley of the Poochera Branch on Eyre Peninsula.

> Last season I sowed about 210 acres with this grass, 120 with oats and 90 with wheat, getting a good rain in April this season. The rye grass grew very quickly until the cold weather set in. I kept the stock off this paddock until it had a good start. Again it has been very noticeable how the sheep ate the rye grass, right down to the roots before they started on the mustard or barley grass, or even the self-sown oats.
>
> I have no doubt that the grass planted in these two paddocks has enabled me to keep the sheep (400 ewes and about 250 April lambs) in fairly good order. To draw a comparison, I have another paddock of 150 acres that has not been planted with the rye grass; this is the second year it has been out of wheat. I have had all the sheep in this paddock at two periods of five days each, and had 50 in there for two weeks at another period. There is no comparison between the paddocks for the body of feed at the present time. (*JASA*, January 1938, p. 595.)

Unfortunately, producers were getting more than they bargained for with this grass, as they realised when Annual Rye Grass Toxicity was identified in 1956.

Subterranean clover was also gaining popularity as a useful fodder. In his paper on the subject, Mr J. Legoe of the Kingston Branch explained how best to sow the seed and told his audience that it did best in areas with a clay subsoil, and would grow well in sandy soils with applications of superphosphate. The discovery of the value of subterranean clover 40 years previously was attributed to Mr A. W. Howard of Mt Barker.

Approximately 200 members of the Agricultural Bureau met for a combined Men's and Women's Conference at Coonawarra on 14 April 1937. Delegates came from Mt Gambier, Tantanoola, Penola, Kalangadoo, Robe, Allandale East, Mundalla, Kybybolite and Millicent. An impressive display of local produce was exhibited, one of the most outstanding features of which was a range of 67 varieties of dahlias grown by Mr R. J. Skinner of Coonawarra.

The conference was opened by Mr S. Shepherd of the ABA, one of several official guests. The other included Mr W. J. Spafford (now Director of Agriculture), the District Instructors, and various other members of the Department of Agriculture. Five papers were read in the morning – *The Bracken Fern Problem in the South-East* by Mr S. Ockley of the Penola Branch, *Pasture Plants* by Mr N. J. McBain of the host Branch, *Fencing* by Mr W. M. Laslett from the Allandale East Branch, *Sheep Problems* by Mr E. C. H. Schinckel of the Kybybolite Branch, and *Cure of Foot-rot* by Mr W. J. Jenkins of the Mt Gambier Branch. The district Dairy Adviser, Mr W. H. Downes, gave a demonstration on *The Points of a Dairy Cow*, and the Departmental officers answered many questions put to them by the audience.

After lunch the delegates were shown over Milne's wine cellars and life memberships were presented by Mr Shepherd. The evening session was filled with an address illustrated with lantern slides in which Mr R. C. Scott described *A Visit to New Zealand*.

Water hyacinth had been discovered growing in the Ramco Lagoon in 1937. An orchardist, Mr Jock Barratt, spoke to the Waikerie Branch about the necessity of dealing with this weed as soon as possible. The Branch supported him, backed by the Ramco Branch and the ABA. In May 1939 the Government started work and eventually removed 1,000 tons of hyacinth from the river. This was one of the few successful battles ever staged against this most tenacious and damaging of weeds.

A revolutionary discovery was discussed at the Port Victoria Conference in 1938. In reply to a question about coast disease in sheep, Mr C. McKenna (Government Veterinary Officer) explained that the disease was now known to be caused by copper and cobalt deficiencies. Since only minute quantities of these minerals were required to correct the problem, sheep owners could mix up chemicals to be administered in the form of a lick. He suggested the following: 40 lb ferrous sulphate crystals, 5 lb manganese sulphate, 2 lb zinc sulphate, 2 lb copper sulphate, 1 lb cobalt sulphate. These ingredients should be ground together and 2 lb mixed with common salt. Alternatively, 8 oz of the mixture could be dissolved with 2 fluid oz of spirits of salts in 1 gallon water and administered as a drench (2 fluid oz per dose). He warned against mixing any form of phosphate with the lick. The knowledge that coast disease could be so easily remedied would have an enormous effect on sheep owners in copper and cobalt deficient areas.

One of the other major problems facing woolgrowers was blowfly strike. Over the years, many experiments had been performed with all sorts of chemicals to control this pest.

In 1908 Mr S. S. Cameron of the Victorian Department of Agriculture had recommended the use of any substance with a pungent aroma to keep flies away from the sheep. Kerosene or

Eucalyptus oil were suitable, but ordinary fish oil was best of all. A few drops sprinkled on the area around the tail would result in a disagreeable odour for so long as traces of oil remained on the wool, protecting the animal from flies. Later, weak solutions of copper sulphate applied to the affected area were recommended, but sheep would often be in trouble again. Thousands of sheep were lost every year through being flyblown. Then in 1929 Mr J. H. W. Mules of Woodside invented an operation which appeared to answer the prayers of sheep owners. It seemed that Merino ewes were particularly susceptible to blowfly strike, as Mr J. Wallis described in his paper on the subject given at a meeting of the Kalyan Branch.

> He found that the most susceptible sheep have a fold of skin about 3/4 in, which extends from the sides of the root of the tail downwards and forwards on the belly, where it peters out. The folds encircle the vulva about 1 in from the middle line, and carry wool sufficiently close up to the inside edge to project inwards and touch the fold of the other side; the result was that the animal could not urinate without soiling the wool, which was practically wet continuously and matted together and rotted by bacterial action. As a result the skin beneath became eczematous, and at the root of the wool there was a collection of serous weeping from the skin and a collection of pus-like material with a putrid odour which was no doubt attractive to blowflies and would be an excellent breeding ground for young maggots. Mr Mules' procedure is to anticipate the slower breeding methods by removing the folds by a surgical operation. He does it by pinching the fold in the jaws of a "Burdizzo" castrating pincers, and while holding it there cutting away the projecting skin with a sharp knife. There is no bleeding; the sheep, even if full grown, makes very little fuss, the edges of the wound pressed together by the clamp remain adherent and in a few days the clamped edges slough away. As a result of the operation the ewe lambs grow up with a clean breech approaching in appearance that of the Leicesters. Mr Mules' observations on grown ewes treated is that where they were previously susceptible to attack (sometimes many times in a season), after the operation they became to all intents and purposes immune. (*JASA*, August 1932, p. 115.)

"Mulesing" as it came to be known, saved the lives of thousands of Australian sheep as its popularity grew. The first public demonstration of the operation under the auspices of the Agricultural Bureau took place on 18 March 1937 before the members of the Appila Branch. By September 1938 public demonstrations of the operation were arranged to take place during the Royal Show so that Agricultural Advisers could learn the technique. Then they would be able to teach sheep owners in their districts the revolutionary operation. The demonstrations took place on the property of Mr E. A. Thomas, Smithfield. Mr Rollo Hawkes of "Warenda", Clare performed the operation while Mr Mules described and explained the procedure.

> With a pair of ordinary sheep shears, or if preferred, rolecut secateurs, the breech folds can be quickly removed, and with sufficient assistance, a skilled operator can treat up to about 1,000 sheep in a day. In this connection the sheep should be crutched shortly before the operation. (*JASA*, October 1938, p. 283.)

Today it is standard practice on merinos, despite the opposition of animal welfare groups.

On 24 March 1938 the Mypolonga Branch of the Agricultural Bureau invited other Branches in the River Murray Swamp areas to a field day. The party visited the canning factory of Mr L. Haynes. The factory which had been established 10 years beforehand, was canning 40,000 tins per annum. Dealing mainly with pears and peaches, the factory was arranged so the fruit was processed as soon as it arrived from the orchard. The group then proceeded to the pumping station where they had lunch. Mr P. J. Baily, a member of the ABA stated that

> many people . . . did not have a proper conception of the work of a swamp area on the Murray. It was thought for example, that pumping stations were merely intended for irrigation purposes only, and not for the all important means of drainage which made it possible to grow irrigated crops. Through the system of barrages, irrigable water would be available in the spring, right through the summer until the autumn, and this would give greater assistance to settlers. It was not possible to grow pastures efficiently without frequent waterings of at least every three weeks. (*JASA*, May 1938, p. 891.)

The Agricultural Bureau members assembled at the property of Messrs H. & W. D. Davey after lunch. Here, Mr R. C. Scott (Chief Agricultural Adviser) spoke to the settlers on the varieties of pastures particularly suited to the swamps. Then they went to the Mypolonga Co-operative Society packing sheds where the manager, Mr A. H. Burrett described the works. The Society not only took care of the packing shed operations, but also

bought wholesale for the members, and sold their product along co-operative lines on the English market. The last item on the day's programme took place at Messrs Voigt Brothers' Orchard. Mr A. G. Strickland (Chief Horticulturist) and Mr E. Leishman (District Horticultural Adviser) spoke to the group on general topics relating to growing fruit in irrigated areas.

The Mt Pleasant Branch hosted a Veterinary Field Day on 3 August 1938. It was an outstanding success, with over 100 people present from Tungkillo, Birdwood, Gumeracha, Woodside, Springton, Eden Valley and the Mt Pleasant district itself. Mr W. S. Smith, a Veterinary Officer of the Stock and Brands Department, demonstrated the vaccination of sheep against entro-toxaemia. He also performed a post-mortem on an animal which had suffered from that disease. He then gave an address, and another post-mortem on *Internal Parasites of Sheep*. Even during the worst periods of the Depression, farmers made the effort to attend field days such as this, realising they could learn a great deal from these practical demonstrations.

Although field days were very informative, many producers felt they needed more time to absorb the new ideas presented. The Echunga Branch suggested that schools specialising in particular areas of agriculture be arranged. The ABA and Department of Agriculture supported their resolution and organised a dairy school to be held at Echunga on the 2nd, 9th, 16th and 23rd December. Forty-one members of Hills branches of the Agricultural Bureau enrolled.

The school was opened by the Hon. A. P. Blesing, Minister of Agriculture. He was accompanied by Messrs W. E. Ford of the ABA, W. J. Spafford (Director of Agriculture), H. B. Barlow (Chief Dairy Instructor), L. S. Smith (Secretary to Minister), H. J. Apps (District Dairy Advisor) and H. C. Pritchard (General Secretary, Agricultural Bureau). The syllabus contained both lectures and demonstrations.

Secretion and Composition of Milk (Mr H. B. Barlow); *Breeds of Dairy Cattle*, and demonstration on the *Points of a Dairy Cow* (Messrs H. J. Apps and P. H. Suter); demonstration on *Milk and Cream Testing* (Messrs W. N Rule and R. Gillespie); *Feeding and Management of Cows and Calves* (Mr H. J. Apps); *Dairy Bacteriology and Hygiene* (Mr H. B. Barlow); demonstration on Grading of Milk and Cream (Messrs W. N Rule and W. J. Taylor); *Common Ailments of Dairy Cattle* (Mr H. B. Barlow); *Developing New Land* (Mr R. Hill); *Breeds and Breeding of Pigs* and demonstration on Types of Pork and Bacon Pigs (Messrs H. B. Barlow and W. S. McAuliffe); *Laying down permanent Pastures* (Mr L. J. Cook); *Feeding and Management of Pigs* (Mr W. S. McAuliffe); *Conservation of Fodder* (Mr R. C. Scott). (*JASA*, December 1938, p. 499.)

It proved to be a resounding success, and similar arrangements were made all over the State to deal with every aspect of agriculture.

1938 marked the 50th year since the inception of the Agricultural Bureau of South Australia. It was an achievement of which the members and organisers could be proud, and they celebrated with enthusiasm. Five hundred and forty people turned out for a dinner in the Apollo Dining Hall in the Adelaide Town Hall on 12 September 1938.

Cereal growers were still experiencing difficulties in making ends meet, despite the rise in wheat prices. The familiar cry was heard then as it is now – "Our costs are too high!" Mr H. E. Broad of the Minnipa Branch read a paper entitled *The Effect the High Cost of Super had upon the Farmer and District Generally* at the Central Eyre Peninsula Conference. He set out four areas where costs could be reduced.

First – Rail freights could easily be reduced 50 per cent. – they are naturally high compared with other States – Victoria 7s 2d, Western Australia 5s 3d, and South Australia 11s for the same distance.

Secondly – The wool and stock firms receive a commission of 2s 6d a ton whether the purchase is made direct by cash or not.

Thirdly – At present the buyer receives a rebate of 3s 6d if he supplies his own bags. As these second-hand bags take the place of new ones, there is no reason why the buyer should not receive new value for his sacks, and so obtain a rebate of about 7s 6d per ton, being the usual price of new corn sacks.

Fourthly – at present super is quoted 2s 6d per ton higher at Port Lincoln than on the mainland. Why should this be?

Super landed at Minnipa today costs £4 4s 4d per ton . . .

	per ton
Using the suggested reductions of freight by 50%	5s 6d
Stock firm commission to be refunded	2s 6d
Surcharge on Eyre Peninsula super to be abolished	2s 6d
Buyers supplying own bags	7s 6d
A total reduction of	18s 3d

showing that if reductions were made, super could be landed at Minnipa at £3 6s 1d per ton.

To-day, if a farmer uses 30 tons, the total cost to him is £126 10s, if reduced, 30 tons would cost £99, giving him a surplus of £27 10s, which would enable him to buy 8½ tons more super for the same money.

Assuming that the farmer is able to procure 8½ tons more super, he is able to sow 200 acres more wheat on fallow, using a 90 lb dressing of phosphate, estimating the yield at 10 bush. gives him 2,000 bush. more wheat to sell at harvest, and I am not going into the matter of profit on wheat growing. With 2,000 more bushels of wheat to sell he is going to be much better off, and the following year will have 200 acres more of early feed . . . The freight on 30 tons of super Port Lincoln to Minnipa is £17 12s 6d.

Reduced freight on 38½ tons	£11 1s 3d
Extra freight on 2,000 bush of wheat to Thevenard	£31 5s 0d
Total earning reduced freight	£42 6s 3d

leaving a credit balance to the railways through reduced freight of £24 17s 9d. (*JASA*, September 1939, pp. 142-3.)

He then went on to remind his audience that super on pasture land was an important weapon in combating erosion. By maintaining a good cover of vegetation, drifting was much less likely to occur. He finished off by explaining that the reductions would not adversely affect the stock firms or super manufacturers:

> The stock firms' commission of £3 15s on 30 tons would be compensated by the fact of having to handle the extra stock and wool that could be produced on the farms.
>
> The super manufacturer, by being able to increase his output by 25%, should be able to supply super at Port Lincoln at the same price as at Port Adelaide. (*JASA*, September 1939, p. 143.)

Despite the hard times accompanying the Depression, the prospects of a young man starting out in life were actually better in 1939 than 35 years previously, according to Mr E. B. Pitman of the Murraytown Branch. He explained why this was the case in a paper given at the Upper North Conference.

> Thirty-five to forty years ago . . . Lads starting off farm work received from 3s 6d to 10s per week, and found, and in working shops, i.e., blacksmiths, carpenters, builders, etc., 7s 6d, 10s and 12s, and found themselves. Team drivers-seeding time wages used to be 12s 6d to 15s for 6½ days a week – not the 5½ day week of today. Harvest wages were from 18s to 25s for stripper and winnower work, and later on harvesters . . . With all the "founds" of today the money received is approximately 2½ times more than 35 to 40 years ago. Sheep shearing was 12s 6d to 15s per 100, and allowing for the extra wool of today's sheep, 17s 6d. Sheep rates of today are double. Fencing was 4½d to 6d per post; today, 1s Post splitting was 20s to 22s 6d per 100; today £4 per 100. Woodcutting was 1s 9d and 2s 3d per ton; 5s today, and 7 ft 6 in long instead of 5 ft 6 in. Station wages were 15s a week and a sheep a fortnight; yet careful men reared families and saved some money besides . . . Necessary food and clothing of today are not on the average 50% dearer that 35 to 40 years ago. Clothes are only 25%. When shearing last year the cost of all clothing that would keep a young man reasonably well dressed each year was discussed and the total on local store prices was £16 10s including £1 a year for bedding. (*JASA*, September 1939, p. 136.)

Murraytown Branch Committee, 1987. Back L-R: Messrs Brenton Blieshke (Sec), Geoff Arthur (Pres), Merv Blieshke (Past Pres). Front L-R: Messrs Ron Orrock (Asst Sec), Chris Clark (Sr Vice Pres), Don Zwar (Jr Vice Pres). Absent: Mr P Bowman (Treas).

He believed one of the main problems in 1939 was that people were more used to the comforts and pleasures life had to offer than they had been previously. A higher standard of living had led to greater dissatisfaction. Although not everyone would agree with his conclusions, the comparison is interesting.

On 3 September 1939 Britain declared war on Germany. Once again the Australian people would be drawn into battle on the other side of the globe. Many more lives would be lost this time, and greater disruption and upheaval experienced by those who stayed at home. Although the outbreak of war marked the end of the 1930s Depression, difficult times still lay ahead.