

**REPORT ON VISIT TO THE MIDDLE EAST/NORTH AFRICAN
REGION**

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1. BACKGROUND

There is increasing interest by the various countries of the Middle East/North African Region in ley farming systems integrating both crop and livestock production. In these countries, there has been traditionally a distinct separation of crop and livestock production. The responsibility for livestock production has rested with the nomadic herdsman grazing rangeland in the arid zones with seasonal access to crop residues.

The benefits resulting from the inclusion of legumes in crop rotation such as the improvement in soil fertility and structure have been well established for centuries. The evidence of declining soil fertility and serious soil erosion in these countries has also been quite clear. It is thus, interesting to consider a number of new factors which are possibly playing a major part in stimulating this interest in integrated crop/livestock farming systems.

- (1) Many of these countries now have access to considerably increased funds for investment in the agricultural sector either directly from their own oil revenue or through various funding arrangements with their oil rich neighbours.
- (2) Most of these countries recognise that the flow of funds from oil production (a non renewable resource) is likely to decrease or even cease in the foreseeable future. Thus, it is important that they rapidly develop their economies including the agricultural sector (a renewable resource).
- (3) Many of the countries wish to develop an agricultural sector to a high standard of technology with maximum mechanisation. Most of them do not have an over population problem and wish to move quickly through the agriculture dominant phase of the economic development process to a stage where the major proportion of the work-force is in the secondary and tertiary sectors.
- (4) There are rising expectations amongst the people for an improved food supply in both quantity and quality. The demand for meat has increased dramatically leading to pressure for improved domestic livestock production.
- (5) The major part of domestic livestock production is derived from nomadic

- herds grazing arid zone rangelands. The standard of animal husbandry and output is very low, and the rangelands are rapidly deteriorating.
- (6) In some countries, there is an expansion of the cultivated area into former rangelands leading to competitive pressures between crop and livestock production.
 - (7) The major emphasis on agricultural development in many countries has been through expansion of irrigation area. The cost of additional irrigation development is high and the marginal rate of return on investment in irrigation projects including infrastructure is very low. This is stimulating increased interest in improving dryland agriculture.
 - (8) Many of these countries have only recently had the opportunity to control their own destinies. There is a desire, often for political reasons, to develop stable farming systems in place of the traditional nomadic grazing or shifting agriculture. A number of countries in the region have the political system and power to rapidly change the social and agricultural structure through agrarian reform.
 - (9) There is general recognition that the most likely zone for improvement in both crop and livestock production is that areas currently used for wheat/ barley production on a crop/fallow rotation in the 200 mms to 400 mms average annual rainfall belt.

Under these circumstances, it is quite understandable that these countries would look to southern Australia to assist them. We have developed a highly mechanised integrated crop/livestock farming system in a Mediterranean climate.

However, the region has a wide diversity of socio-economic and political structures and a many faceted approach to the organisation of agricultural production. It is evident that our system will need to exhibit considerable adaptive capacity.

In 1974 the South Australian Government and the Libyan Government signed an agreement for the Department of Agriculture to establish a Pilot Demonstration Farm at El Marj. The primary objective was to demonstrate the SA farming system incorporating medics as a pasture phase. The project has proved successful in this objective, although the major impact of medics in the overall production performance

has yet to be forthcoming. Other countries in the region have recognised the successful demonstration and have made contact with SADAF (South Australian Department of Agriculture and Fisheries) regarding the possible establishment of similar project and other forms of technical assistance. In addition, the approach adopted by SADAE with a good balance of technical and practical expertise is considered very desirable.

Under these circumstances, it was considered essential that I visit some of these countries at this critical stage of our developing relationships.

2. OBJECTIVES

- (1) To develop an over-view of the region, and the specific relevance of the South Australian experience.
- (2) To assess the potential for a contribution by SADAF, and to evaluate the possible trade development benefits to South Australia.
- (3) To follow up specific contacts by various countries concerning possible projects, and to develop new contacts.
- (4) To have discussions with FAO officials in Rome concerning the agriculture development of the Region, and possible co-ordination between FAO and SADAF.
- (5) To develop closer co-operation with ICARDA (International Centre for Agricultural Research in Dry Areas).
- (6) To visit the SADAF Project in Libya and review objectives, staffing, and project management.

The opportunity also arose to be with the Premier and his party during their visits to Jordan, Libya and Algeria.

The tour schedule is provided as Appendix I.

3. SYRIA

The primary purpose of my visit to Aleppo in Syria was to make personal contact

with ICARDA (International Centre for Agricultural Research in Dry Areas) which has been recently established under the auspices of CGIAR (Consultative Group on International Agricultural Research). I wished to further develop closer co-operation between SADAF and ICARDA. In recent years, officers from our Plant Introduction Centre at Parafield have conducted medic collection missions in the region, in co-operation with ICARDA.

I had discussions with a number of ICARDA staff members on a number of issues related to the objectives of ICARDA and a possible working relationship with SADAF. The stated objectives of ICARDA are to conduct research and training to increase and stabilise food production in the region and specifically:

- (a) to serve as an international centre for research into and the improvement of barley, lentils and broad beans (*Vicia faba*) and such other crops as may be designated by the Board of Trustees in consultation with the CGIAR;
- (b) to serve as a regional centre, in co-operation with other appropriate international agricultural research centres for research in other crops of major importance in the region such as wheat and chickpeas;
- (c) to conduct research into and develop, promote and demonstrate improved systems of cropping, farming and livestock husbandry;
- (d) to collaborate with and foster co-operation and communication among other national, regional and international institutions in the adaptation, testing and demonstration of improved crops, farming and livestock systems; and
- (e) to foster and support training in research and other activities carried out in the furtherance of its objectives.

In discussions with Owen Brough and John Doolette, I suggested that it would be more efficient for SADAF, with appropriate assistance from ICARDA, to further develop our existing facilities as an international medic gene pool including a distribution capacity. For ICARDA to develop a similar operation, it would divert significant resources from other very important objectives. I also had discussions with Bhal Samaroo, Plant Breeder regarding this issue and also concerning the possibility of contracting a research agronomist to ICARDA. With Shawbi Barghouti, Communication Specialist, I discussed the proposed ICARDA training programs, and

the possibility of assistance from SADAF, particularly for training in farming systems. In summary, the general proposals discussed and broadly accepted were as follows:

- (1) A memorandum of understanding outlining the general guidelines for co-operation should be developed.
- (2) The Medic Centre at Parafield should be developed as a co-operative venture with ICARDA. The suggestion is that ICARDA fund some additional operating expenses (staff and expenses). The position regarding any capital expenditure is somewhat uncertain. ICARDA is already funding some U.S. universities for specific tasks, but it is unknown whether this includes capital funds.
- (3) Continue collection trips under existing arrangements.
- (4) SADAF could possibly contract officers to work with ICARDA, e.g. research agronomists, plant breeders (perhaps exchange basis).
- (5) SADAF to co-operate in training programs being run at Aleppo by ICARDA. The ICARDA operation could provide a very effective underpinning for our activities in the Middle East and it is well worthwhile pursuing an active co-operative program.

It is possible that Dr. Harry Darling, the Director of the Institute, may be visiting Australia in August/September sponsored by the Department of Trade and Resources. Owen Brough and John Doolette have indicated that they will endeavour to develop these proposals to a stage where finalisation may be possible during Dr. Darling's visit.

4. JORDAN

My host in Jordan was Dr. Hassan Gharaybeh, Director of Agricultural Research and Extension in the Ministry of Agriculture. Dr. Gharaybeh obtained his Ph.D. from the University of NSW in the mid 1960's. I had discussions with the Minister of Agriculture and various officials of the Ministry regarding the general proposal for a pilot demonstration farm. Initially, it was suggested that something could be do at the Yarmook University site in N. Jordan near the Syrian Border. However, I indicated the area was very marginal and not satisfactory from our point of view. Early in the

discussions, it became clear that there were two aspects relevant to our possible involvement. Firstly, the problem of land ownership and fragmentation. Secondly, the total area of land in Jordan in the 250 mms to 400 mms average annual rainfall belt is very limited. The first problem would require an adaption of our farming system to some type of co-operative framework. There seemed little relevance in establishing a pilot demonstration farm on a larger area (1 000 ha). While the land area in the appropriate rainfall zone is limited, the total area of agricultural land in Jordan is also very small, following the loss of the West Bank. Thus, our contribution could be quite significant.

I had a very interesting discussion with Prof. Subhi Qasem, Dean of the Faculty of Agriculture, University of Jordan and Dr. Gharaybeh. Professor Qasem gave his full support to the concept of a project involving co-operative organisation and indicated his staff would be very keen to be involved. There is evidence of territorial problems between the University and the Ministry. Prof. Qasem is pursuing a very aggressive approach involving considerable research and extension activity. He has attracted many of the best officers away from the Ministry. In this discussion, we also covered the problem of the country below 250 mms rainfall. This area is at the margin of cropping and rangeland grazing, and there is considerable pressure to extend cropping into very low rainfall areas with clear cut evidence of severe erosion. Whether to ban cropping in this zone is a major agricultural policy issue, and a difficult one to implement in Jordan. If we become involved in a project in Jordan, it is likely that this problem will be drawn to our attention.

I had the opportunity to give a lecture to staff of the University and the Ministry at the University of Jordan, and constructed the subject matter and presentation around the film "Food From the Reluctant Earth". The question session was very good and had to be forcibly closed by the Chairman.

I travelled to all significant agricultural areas in the country, including the Jordan Valley, and had the opportunity of broadly assessing the respective areas as prospective project sites.

SUMMARY

The SA farming system based on cereal/medic rotation has most application in the 250 to 400 mms annual average rainfall zone. Above 400 mms, there are a number of cash crop possibilities such as tobacco, summer vegetables, tree crops, etc. which seem likely to be more economic than the medic/cereal system. Below 250 mms cropping is definitely marginal and the problem is more related to rangeland management. In my opinion, the direct application of a large area pilot demonstration farm similar to the Libyan project is inappropriate for the Jordanian situation with fragmented small holdings. If our system is to be of any relevance, then it would need to be implemented within some sort of co-operative framework. This is obviously a much more complex undertaking than the Libyan project. The suitable country is on the plateaux in the north near Irbid, in the centre just south of Amman, and in the south near Karak. It is important to recognise that the total area of suitable country in Jordan is quite limited. On this basis, the likelihood of significant trade spinoffs is fairly restricted within Jordan itself. However, the successful (hopefully) adaption of the SA system would be of relevance to other Middle East countries with similar structural and socio-economic problems. I indicated to the Premier that I considered the project in Jordan to be more appropriately handled as part of the Australian Aid Program. I had received indications of interest by ADAB (Australian Development Assistance Bureau) prior to my trip.

In discussions with various Ministers, the Premier supported my approach and indicated that SADAF would follow up with a feasibility study.

I was impressed by the overall approach of the Jordanians, and Jordan would be reasonable country in which to operate an overseas project.

In summary, we could be asked to conduct the necessary feasibility studies for what might be called the "Farming System Co-operative Project". The following stages are suggested:

- (1) A prefeasibility study visit to finally select the project area and village, to develop terms of reference, and to specify the feasibility study team structure, costs sharing arrangements, etc. - possibly during September or October.

(2) Feasibility study - in early 1979.

I would suggest, assuming all the stages are approved and it is decided to undertake the project, that the earliest starting time would be in August/September 1979.

I will be visiting Canberra for discussion with ADAB as soon as possible after I return. The local Department of Foreign Affairs people from Damascus have already forwarded a report in general support of the project.

5. LIBYA

My first visit to Libya was with the Premier and his party, and consisted of various functions and a flying visit to the SADAF Project at El Marj. Mr. Bashir Joudeh, the Chairman of the Jabel Akhdar Authority, acted as host while we were in Benghazi or at the project. He presented the Premier and myself with a request for assistance for three new projects. At Tripoli, the Premier and party had a session with the Secretary (equivalent to Minister) of Land Reclamation and Reconstruction. The Premier indicated that SA is not involved in overseas aid as such, and there would to be some clear cut benefits to the State from any new projects undertaken. The new projects include:

- (1) A pilot demonstration farm at Jardina.
- (2) A similar proposition for Tobruk.
- (3) An irrigated seed production project at I1 Sareer. During my second visit, Bashir Joudeh also added:
- (4) Irrigated vegetable production project at Kufra.

I indicated to the Premier that I had strong reservations about undertaking any additional projects in Libya, and that I would discuss them further with Bashir Joudeh on my return visit.

On 12 May, I returned to Libya and spent virtually all the time at the project or travelling to inspect the proposed sites for new projects. I had considerable opportunity to have several discussions with the staff and with Bashir Joudeh concerning the El Marj project. The primary objective of the project has been achieved, and an integrated crop-livestock farming system has been successfully

established. The full contribution of medics to livestock and crop production is yet to be realised. However, Bashir Joudeh's basic objective is to successfully establish 2600 farms in the surrounding area as quickly as possible. There is now considerable pressure for the team to become more involved in off-farm activities in the development area. The request for assistance with new projects is also a reflection of this pressure. Thus Bashir Joudeh clearly indicated his desire to expand the farm planning activity, the applied research program on and off-farm including livestock research, soil conservation assistance, farm management studies, etc. The project is entering a new phase which will involve a larger team, a wider range of expertise, and a more complex management task for the Team Leader.

A modified team structure was developed as follows:

- Team Leader
- Agronomist
- Farm Manager
- Farm Technicians (2)
- Farm Planner
- Field Technicians (2) - farm planning
- Farm Management Economist - 3 months
- Field Technician - farm management
- Soil Conservationist
- Soil Conservation Specialist - short term
- Field Technician (Benghazi Plains)

In addition, Bashir Joudeh expressed concern at the lack of a livestock specialist. I drew his attention to a report by Ron McNeil on a livestock program and he expressed general agreement with the proposals. Map drawing for the farm planner is providing a problem, and Bashir Joudeh suggested that map drawers should be provided from Australia, perhaps some of the wives may be interested. This proposition will need some careful examination.

It is clear that the size of the team necessary to provide the off-farm services is quite substantial. A significant part of the resources required can be provided external to SADAF salaried officers. Nevertheless, it must be appreciated that this expansion

places an additional load on project management, and also on the home-based support services and administration.

For instance, the agronomist requested more positive technical support in his expanding applied research program. This is a reflection of the likely increased needed for overall technical support services as the project moves into the wider fields involving agricultural development in surrounding areas.

Bashir Joudeh had submitted brief details of three additional projects during the visit of the Premier. During our discussions, he introduced another project at Kufra. I spent two days inspecting the Jardina and Tobruk propositions.

Jardina is some 40 to 50 kms from Benghazi, in a fairly low rainfall area, receiving an average around 200 mms. Tobruk is some 400 kms east along the coast from Benghazi, and is quoted around 150 mms average annual rainfall. These are definitely marginal areas, and I stated that I did not consider them demonstration farm propositions at this stage. I would not give any commitment regarding these projects. Regarding the other two projects, at Al Sareer and at Kufra, both several hundred kilometres south into the desert wilderness, we agreed they were more suitable for a commercial company. They are basically production projects requiring compete) management.

I have arranged for a detailed report on all these projects to be forwarded by the Team Leader as soon as possible.

6. ALGERIA

I visited Algeria with the Premier's party and stayed for an extra five days to follow up various aspects and visit key agricultural areas. The main issue of concern which the Premier tackled was the state of negotiations regarding the Ksar Chellala Project. There seemed to be general agreement concerning the two main outstanding issues, namely, housing and tax. The Algerians agreed to provide two documents, a letter of understanding concerning some unresolved issues, and acceptance of the ATCO tender for housing at the project.

The Algerians also mentioned a Medic Research Centre again, - this had been previously suggested during the recent visit to Australia by an Algerian delegation including the Secretary-General.

I briefly visited the University Institute and also the Institut Development des Grandes Cultures.

One day was spent visiting the proposed site of the Ksar Chellala project accompanied by Bob Pattison (from Wagga, NSW) who is an FAO livestock assignment. The site is about 3.5 to 4 hours drive from Algiers and is situated in flat, stony, steppe country. Considerable scope is available for an enterprising landscape architect. I inspected several irrigation bores installed by the Russians which will be available to the project. There is some reasonably suitable soil for irrigation nearby.

I then flew to Constantine and visited the German Aid Project at Batna. The Team Leader, Erkhart Van Aufsess, was extremely enthusiastic and keen. They are undertaking an integrated regional development project in the rugged mountainous area involving forestry and agriculture, and associated industries. The general approach is to develop forage production with irrigation in the valleys and thus to reduce the grazing pressure on the forests. We inspected several small pilot projects testing various forages including lucerne, and mixtures of white clover, red clover, cocksfoot, demeter-fescue. They are also attempting to improve degraded steppe by contouring and sowing grasses, legumes, and fodder shrubs. SADAF has been in contact with the Agronomist concerning medics. At this stage, our medics have not been successful under the high altitude conditions. The agronomist hopes to harvest local ecotypes and forward seed to SADAF.

The next day, I flew to Oran and spent the day with David Saunders (CYMMT) formerly of this Department. I inspected a number of his experimental trials at various sites and altitudes. I found his ideas on the place of medics in the Algerian situation most useful.

SUMMARY

There are three distinct types of farming structures in Algeria:

- (1) The domaines - large area farms formerly operated by the French. They occupy a significant area of the best agricultural land. They are operated as state farms with the revenue from crop production going straight to the Government. The farm labourers are allowed to graze their own livestock on crop residues.
- (2) Socialist villages.
- (3) Small holder farms - mostly on the poorest land.

The most significant type from our point of view would be the domaines, but at this stage, there has not been any indication of interest by the Algerians. They are farmed European style and the French influence is very strong. There is currently no direct evidence in Algeria that medics will increase crop yields. The general view is that medics will have to compete with other forages in the farm system purely from the livestock production point of view.

One other interesting point is that all machinery purchases are handled through ONAMA, the State Organisation for Machinery Service, part of the Ministry of Agriculture and Agrarian Reform. Much of the current machinery purchased is obtained from the Eastern European countries by barter. Canada recently made a big sale by allowing generous long-term credit.

Following my visit, Glyn Webber, Principal Agronomist, has assisted in the presentation of a number of medic seminars in Algeria and has followed up on a number of these matters.

7. FOOD AND AGRICULTURAL ORGANISATION (FAO) ROME

I had an initial meeting with the Deputy Director-General, Dr. Ralph Phillips, to discuss general issues and the proposed itinerary. John Sault, the Agricultural Counsellor of the Australian Embassy, had arranged a program of specific interviews.

My initial impression was that several of the FAO officials seemed surprised that I considered it necessary to have discussions with them. There was an air of isolation in that huge bureaucracy. Under these circumstances, I spent some effort explaining our involvement in the Middle East region and our particular approach.

I had a brief discussion with Dr. T.S.B. Aribisala, Director, Agricultural Services Division. Present at this initial meeting were Dr. Neil Carpenter, Chief, Farm Management Unit, Mr. Rannsfelt, Agricultural Engineering Service Unit, and Mr. Abbott, Marketing and Credit Service Unit. I made appointments to see each of these officers individually.

Neil Carpenter proved a very dynamic operator, and we discussed the general approach of his Unit and possibilities of co-operation in any farm management work we may undertake at our projects. We both agreed it would be very beneficial to standardise our data collection, terminology and analytical procedures. This unit is preparing a number of publications and manuals with assistance from the University of New England Armidale, NSW. John Dixon, from UNE, is currently on contract to the unit.

In discussion with Mr. Rannsfelt, he expressed considerable interest in South Australian machinery, and in the possibilities of our involvement in machinery training programs both in South Australia and possibly at our pilot farms. He also enquired whether SADAF would be interested in undertaking FAO projects on contract.

Mr. Abbott, Marketing and Credit Service, provided me with a range of publications.

I had a very useful discussion with Mr. S.A. El Shishtaway, Chief, Regional Bureau for Near East and North Africa in the Development Department. He provided a very useful outline of the FAO funding approach, which is quite complex, and I hope my outline is accurate.

There are a number of types of funding arrangements as follows:

- (1) UNDP (United Nations Development Program)
FAO's share is about 1/3, the balance is provided to other International agencies e.g. ILO (International Labour Organisation). Approximately US\$350 million.
- (2) Trust Funds
Approximately US\$100 million over 3 years. About US\$32 million comes from Near East Co-operative Program (NECP).

Within the Trust Fund arrangement, there are four different types:-

- (1) Unilateral - a country provides funds to FAO for a project in its own country. A mechanism to obtain FAO expertise and administration.
- (2) Bilateral - a country provides funds to FAO for a project in another specific country.
- (3) Near East Co-op. Program (NECP) - 7 oil rich countries provide funds to help less fortunate countries in Near East region.
- (4) Multilateral - several countries contribute to regional projects beneficial to all. A variation is where several countries contribute to a project in one other country.

About 5 years ago, a new approach was introduced called Cost Sharing. A proportion of the required funds were provided by UNDP and topped up by the recipient country (generally 50 per cent by UNDP).

I enquired about the general approach taken to assess proposed projects. Under Trust Funding, the government/s request assistance and FAO examines the proposal. A plan of operation is developed including financing.

Under UNDP funding, the government requests assistance. The UNDP Governing Council determines ultimate priorities with the Indicative Planning Figures (IPF) specified for each country. There is continuous dialogue, and country programs are developed in conjunction with UNDP representatives in each country. The Governing Council depends substantially on advice from their representatives. Most of the assessments are done by FAO staff or outside consultants. There seems to be a solid "old boy" network of former staff, university staff, etc. to draw upon. Normally, a

project study team would include 1 to 2 members of current FAO staff.

I had an interesting discussion with JPH (Peter) Van Der Veen of the Development Department on Algeria and Syria. He has a very good knowledge of these two countries, and is familiar with the medic story and the problems of the introduction of the integrated crop/livestock farming system. He also provided some useful information on rangeland projects of relevance to the Ksar Chellala Project in Algeria. In particular, he mentioned Dr. Draz, acting FAO representative in Syria, who is involved in an interesting rangeland project testing grazing co-operatives and developing appropriate legislation. The approach is based on a systematic and controlled tribal grazing of "Hama" areas with a strong religious basis.

Another useful contact with Dr. I. Abu Sharr, Chief, Investment Centre, Europe, Near East and Latin America. This Centre is concerned with project evaluation. They were interested in our approach, and expressed concern at the lack of any significant change occurring in the region which could be attributed to FAO projects.

I described our farm systems approach and our blend of technical and practical expertise. It is clear that the new policy drive in FAO is to concentrate on projects of a more practical nature, in an effort to stimulate some significant change.

Mr. A. De Fauconval, Senior Country Projects Officer, Near East, North Africa and Europe, Agricultural Operations Division, provided some useful information about current projects being undertaken by FAO in the various countries in the region. The Agricultural Operations Division is responsible for implementing approved projects except those in fisheries or forestry. It proved somewhat difficult to obtain a list of current projects. The basic information is available in the Plan of Operation for each project, but would need extracting. UNDP also distributes information to all members.

Appendix II provides a list of current projects in a number of countries in the region. In most countries, FAO and UNDP are represented separately. However, when FAO activity is very small, the UNDP representative frequently acts on FAO's behalf.

A final contact was with Mr. T. Ionesco, Plant Production and Protection Division. He is actively involved with the EMASAR program concerned with rangeland management in the region. This is an International Co-operative program adopting the ecosystem approach. There are three main fields of activity in this program:

1. Integrated rangeland management projects
2. Identification and evaluation of important species in N. Africa, Middle East and Saharian Zone.
3. Training programs.

It seems important that we work very closely with this program as it is of direct relevance to the Ksar Chellala Project in Algeria.

8. EGYPT

My stay in Egypt was very brief as it was primarily a transit for the visit to Sudan. However, I met a number of very interesting contacts at a function arranged by the Ambassador, His Excellency, Mr. C.R. Ashwin. Two of these contacts were visited on my return from the Sudan. Mr. Piero Bronzi, Ford Foundation, provided a very interesting discussion on the agroclimatology of the region. He is finalising a report on this subject in the near future. Dr. Akram Al Jaff, a former Minister of Agriculture in Iraq, provided some useful background information.

Egypt is dependent exclusively for increased agricultural production on expanding the irrigated area. A specific contact in the field of land reclamation was a Mr. Gahgat Hussanein, who is one of the largest private contractors in Egypt. He expressed interest in possible joint ventures.

At a meeting with Soad Hogras, First Under Secretary of Ministry of Agriculture, he indicated Egypt's intention to develop another 2.8 million acres for irrigated agriculture as quickly as possible. We agreed this posed an enormous demand for feasibility studies, soil survey etc. not to mention the requirement for investment funds.

I also had discussions with Dr. Mohamed Nour, FAO resident representative in

Egypt, a former Minister of Agriculture in the Sudan. He considered that Australians have much to contribute to the development of dryland agriculture in the Sudan.

SUMMARY

Egypt is facing an enormous task in agricultural development. While our main thrust overseas has been in the development of dryland agriculture in semi-arid environments, we also have specific expertise in irrigation and soils under condition of high salinity. The Australian Government is developing considerable interest in possible aid projects in Egypt, and we could consider the possibility of some involve in these projects under appropriate circumstances.

9. SUDAN

The general situation in the Sudan is one of great potential. There are large areas of suitable land for agricultural development currently being used for grazing by nomadic herdsmen. There are severe infrastructural problems, and the country has an insatiable appetite for investment funds.

The northern third of the country is desert, the central third savannah grasslands and irrigation projects, and the southern third is semi-tropical to tropical.

The initial agricultural development concentrated on irrigation projects mainly producing cotton. These projects are now diversifying into other crops. Livestock is produced in the rangelands, mainly in the western areas.

The rainfed agricultural development is taking place in the central area which has a summer dominant rainfall pattern roughly similar to northern NSW and southern Queensland. Sorghum, sesame, oil seeds, soy beans etc. are the types of crops being grown. There is still a quite clear-cut separation of livestock and crop production. The approach to agricultural development is highly mechanised. Labour problems are arising in the irrigation areas particularly during harvest times caused apparently by some export of labour (e.g. to Libya, El Marj) and allocation of land in areas which previously supplied casual labour. Land allocation is primarily based on

1000 acre units at a rental of \$100 per annum. There are large areas farmed by the government, mostly by the Mechanised Farming Corporation (MFC). In contrast, recent legislation is specifically aimed at encouraging private investment in Agricultural and Industrial Production Projects. On a government to government basis, the MFC would be a very important contact, and expressed interest in a joint operation of an integrated crop/livestock farm. This seems one possible area of involvement but because of climatic differences, the technology of the farming system would be more relevant to southern NSW. The farming system would involve sorghum, oil seeds, etc. and cattle. The main technical problem is the lack of a suitable pasture legume to include in the rotation with similar characteristics to the medic used in the Mediterranean environment.

Considerable pressure is already arising between the expanding agricultural areas and the rangeland livestock production. However, the current government policy seems to be very positively aimed at a rapid expansion of rainfed agriculture and the eventual elimination of nomadic livestock raising. In this context, integrated crop-livestock farming systems are of particular relevance.

The following is a list of contacts with brief comments.

- (1) Mahmoud A. Aboulela - John Shearer's agent. A very good contact, and most co-operative. Very good knowledge of the country and the problems of agriculture development.
Mr. Aboulela mentioned Shearer's were using an Australian farmer (McCalloch) on a small demonstration farm this coming season.
- (2) Salah el Din Hassan Ahmed. Deputy Director-General, Foreign Relations Administration, Ministry of Agriculture. Discussed the recent Machinery Field Day and indicated it was very successful. However, next one should be held in September/October as this is a more suitable time.
- (3) Dr. Abdeen Hassan Abdoun, Director-General of Agricultural Engineering Affairs, Ministry of Agriculture. He also commented on success of Field Days and on the good performance of Australian machinery. He emphasised the strong competition from traditional suppliers and expressed interest in the concept of a demonstration farm. He also indicated that Shearer's already had

a project underway (McCulloch).

- (4) Dr. Mohamed Obman Mohamed Saleh. Director of Plant Production, Arab Organisation for Agricultural Development (headquarters in Khartoum). This organisation could be described as the Arab equivalent of FAO. He indicated that they are carrying out a large number of studies in Arab countries.
- (5) Prof. Khattab, University of Khartoum, Faculty of Agriculture. We had an interesting discussion covering courses and curriculum.
- (6) Mr. Ian Gordon, Overseas Development Ministry, with the British Embassy. A very short but useful discussion. Agreed with my impressions that the Sudan should slow down on the rate of expansion of agricultural land and concentrate on improving infrastructure and general services. He went even further and asked for my support to try and influence a slow down. Apparently, several aid projects were running into severe problems associated with poor infrastructure and communications.

SUMMARY

1. The Sudan has great potential, but severe infrastructural problems will slow down real progress considerably. There are opportunities now to make quick profits but with perhaps doubtful benefit to the country in the long term.
2. The environment in the Central rainfed areas is similar to southern Queensland with a summer dominant rainfall. Thus, the crops grown include sorghum, oil seeds, etc. There is a lack of a suitable pasture legume to include in the rotation.
3. There is considerable scope for sales of agricultural machinery, in particular, into the Sudan. An active program is necessary to compete with the traditional suppliers mainly European.

10. IRAQ

The primary objective of the visit was to follow up previous contacts between the South Australian Department of Agriculture and Fisheries (SADAF) and the Ministry regarding dryland farming projects in Northern Iraq. An outline of a proposed demonstration farm project was forwarded to the Ministry following the visit to Iraq by Mr. Arthur Tideman, Chief Agronomist, during November, 1977.

The first meeting with the Ministry officials was held on 27 May and I was accompanied by Mr. John Graves (Commercial Counsellor) and Mr. Michael Antoon (Marketing Officer) of the Australian Embassy.

The Iraqis initially questioned me closely to demonstrate whether the proposition was clearly government to government, and that it was entirely different to the previous submissions made in conjunction with private consultants.

The main points raised in a very effective discussion concerned the general concept of the proposed Demonstration Farm Project, the possible areas where the project could be sited, and the respective responsibilities of each party. There was agreement that the practical demonstration of an integrated crop/livestock farming system based on the inclusion of medicago species in the rotation was a vital first step in the future development of agriculture in the northern cropping areas. There was discussion on the possible areas for the establishment of the project. It was agreed that the project should be in the rainfall zone of not less than 350 mms. It was considered essential that the integrated farming system should be demonstrated effectively in an area of adequate rainfall. Subsequently, an applied research program could develop suitable systems for the lower rainfall areas.

The meeting request that a general outline of our proposal including a draft example contract be prepared for presentation at the next meeting to be held on 28 May.

At this meeting, the outline of the proposed general program was discussed in some detail. It was agreed that a further discussion on these matters would be held on Thursday, 1 June, following my return from a visit to proposed sites in the northern cereal areas.

I travelled to Mosul on the afternoon of 28 May accompanied by Mr. Peter Webb (Trade Officer) and Mr Michael Antoon. The first area visited on 29 May was the northern Gazera and we were accompanied by Mr Duraid, the Director of Ninevah Governorate and some of his officers. We travelled to the Field Crop Station at Rabia, and also inspected a "Pioneer" farming area. We then visited the Field Crop Station at Telafar, and inspected the medic establishment and crop rotation trials.

On 30 May, the party travelled to the Intisar State Farm and inspected the farm area including a proposed site.

On 31 May, we visited a proposed site at Baherka, some 15 kms north east of Erbil, accompanied by a team of local officers including the Manager of the Field Crop Station at Talafar, who was away on business the previous day.

At the meeting on 1 June, I was asked for my overall impressions following the visit to the northern area. I explained that my comments should not be taken as an indication of a firm decision on my part as I intended to discuss the matter further with officers of my Department on returning to South Australia. In addition, I appreciated that the final decision will rest with the Government of Iraq.

I indicated that the criteria considered important from our point of view include

- (1) suitable soil type and topography
- (2) adequate rainfall, 350 mms to 450 mms
- (3) availability of sufficient area - 1 000 ha minimum
- (4) nearness to a substantial population centre
- (5) located to provide an opportunity to influence a substantial area of the northern cereal zone.

The areas inspected were rated as follows:

Rabia (1) and (2) satisfactory
(3) no area available at present
(4) 80 to 100 km from Mosul - a greater distance than desirable
(5) located on western edge of main cereal zone - not very central

Intisar (1) and (2) satisfactory, except rainfall too high - annual average approximately 500 mms
(3) area available
(4) 80 kms from Mosul, 40 kms from Duhok
(5) located on edge of main cereal zone, not very central

Erbil (1) and (2) satisfactory
(3) area available
(4) 15 kms from Erbil, 100 kms from Mosul

(5) centrally located in northern cereal zone.

During the discussion following my initial comments and ratings, it was agreed that the Intisar area was not really suitable given the overall objectives of the project. The meeting strongly emphasised the importance of the northern Gazera area and the need to develop a farming system to stabilise the area. It was pointed out that Ninevah was the most important from a production point of view of all the Governorates in the northern cereal zone, and that a suitable area could be provided nearer to Mosul. An applied research program to identify the most suitable medics for other areas of the cereal zone could be undertaken. The integrated farming system could then subsequently be extended to the whole of the northern cereal zone. Under these circumstances, I indicated that a site adjacent to the highway from Mosul to Rabia, either north towards Zummar or south in the area of Iadia, would be suitably located.

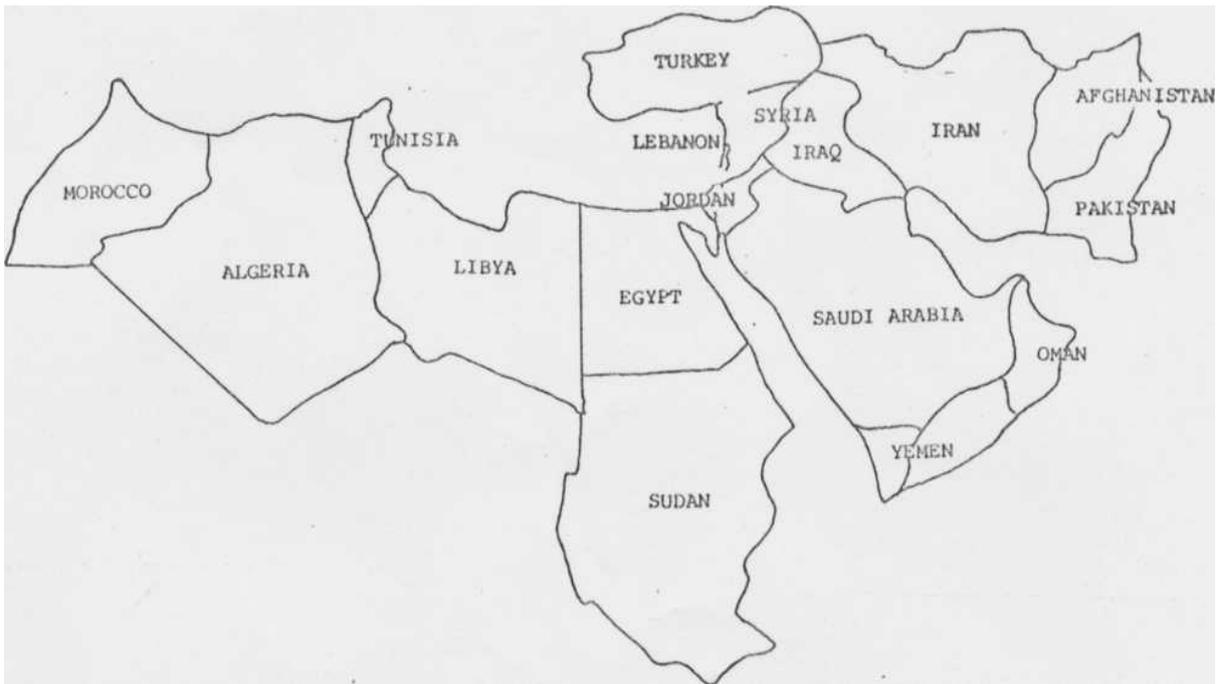
As indicated in the rating of the various areas, the site 15 kms from Erbil was favourable for all criteria. It is centrally located in the northern cereal zone, and is in the centre of an important co-operative development affecting a large number of farm families. From our point of view, this site would also be quite satisfactory.

The meeting concluded with an undertaking by us to send a small team in a couple of months to further develop the proposals. This team will continue the planning and negotiations necessary to bring the project to a stage where it can be effectively implemented.

ACKNOWLEDGEMENT:

I would like to express my appreciation of the efficient assistance and co-operation of staff of the Australian Embassies, the Commercial Counsellors and staff, and the excellent organisation and hospitality provided by the various officials in each country.

APPENDIX 1. MAP OF REGION AND ITINERARY



ITINERARY

11-14 April	Syria
14 - 22 April	Jordan
22 - 25 April	Libya
25 April - 2 May	Algeria
2 - 12 May	Italy (Rome)
12 -19 May	Libya
19 - 20 May	Egypt
20 - 25 May	Sudan
25 May - 3 June	Iraq

APPENDIX 11. LIST OF CURRENT FAO PROJECTS

PROGRAMS

- Jordan Virtually nothing at present, mainly because they receive a lot of other assistance.
- Syria Programs in irrigation and horticulture. Irrigation in URFRAZ Regd Dairy project, forage and pasture, integrated agricultural developn project (partly rangelands). Assistance for development of Veterir College.
Assistance for development of Faculty of Agriculture, University of Damascus.
- Iraq To have increasing number of trust fund projects.
Projects:
- Buffalo production
 - Development of livestock production
 - Assistance to the Institute of Co-operation and Agricultural Extension
 - Pilot project - soil improvement and management Assistance in establishing training and applied research - Centre for Food Industry
 - Assistance to the Centre for Mechanisation in Agriculture Assistance to the Ministry of Agriculture in Agrarian Reform Assistance to the Directorate of Rangelands
 - Establishment of an animal feed laboratory and experimental animal unit - Baghdad
 - Assistance for food and vegetables
- Sudan Assistance to the Institute for Hides, Skins and Leather production
Assistance in Agricultural Statistics, seed production & certification

Assistance to Soil Survey Department, Savannah Development, land development in southern Sudan

Advisers to Ministry of Agriculture and other departments Poultry improvement, dairy improvement, horticulture improvement and Dairy Development Project with last 5 emphasis on provision of advisers.

Libya

Finance mainly by trust funds

Agricultural statistics, agricultural economic planning team, strengthening of Food Nutrition Control Services, land and water investigation, agricultural research

Institute for Training Studies and Advisory Services in agricultura co-operatives

Range and Livestock Development Project (Gefara Plain)

Algeria

Just commencing Trust Fund approach

- Horticulture (vegetable) production *
- Cereal production (especially wheat) *
- Agricultural research *
- Training of Extension Agriculturists
- Olive oil production project
- Oil crops improvement (excluding olive trees)
- Animal protection project (especially beef)
- Animal production on medic pastures

* Major programs