

**Emergency Prevention System (EMPRES)
for Transboundary Animal and Plant Pests and Diseases
(Desert Locust Component)**

3rd Meeting of EMPRES Liaison Officers

**Plant Protection Department, Ministry of Agriculture
Sana'a, Yemen, 15-17 April 1996**



Food and Agriculture Organization of the United Nations

The 3rd meeting of the EMPRES liaison officers was hosted by the government of Yemen and attended by the following persons:

EMPRES Liaison Officers:

Mr. A. A. Abdalla (Sudan)
Mr. Abdurahman Abdulahi (Ethiopia)
Mr. A. S. A. Al-Abry (Oman)
Mr. J. M. Al-Shehri (Saudi Arabia)
Mr. H. E. Amir (Djibouti)
Mr. F. M. Bahakim (Yemen)
Mr. Bereke Ogbamichael Kiflay (Eritrea, representing Mr. Mehari Tesfayohannes)
Mr. A. H. Karrar (DLCO-EA)
Mr. M. S. Simary (Egypt)

FAO Staff:

Mr. A. Hafraoui (Chairman, Senior Officer, Migratory Pest Group, AGPP)
Mr. M. Taher (Secretary, Commission for Controlling the Desert Locust in the Central Region, RNE)
Mr. B. Zelazny (EMPRES Planning Officer, AGPP)
Mr. C. Mushi (UN volunteer, FAO Somalia)

FAO Consultants:

Mr. S. El-Bashir
Mr. M. Marsella

The meeting was opened by Mr. F. A. Mojawar, Deputy Minister of Agriculture and by Mr. S. S. Mahdi, FAO Representative to Yemen. Mr. Mojawar welcomed the participants to Yemen and emphasised the importance of the Desert Locust problem for his country. The government has established a special centre for locust control and has collaborated with FAO and donors in creating well equipped and well trained survey and control units. Mr. Mojawar also drew attention to the international nature of this pest and to the importance of preventive control and of collaboration between all locust-affected countries.

Mr. Mahdi summarised the objectives and activities of the EMPRES programme and the concept of preventive control. In particular he highlighted the importance of early warning and sufficient preparedness for early reaction. Mr. Mahdi also took the opportunity of the meeting to inform the participants of the importance of the World Food Summit which will take place in Rome in November 1996. The aim of the summit will be to prepare a plan of action to remove hunger and malnutrition in the world and to tackle the problem of food production.

The adopted agenda of the meeting is attached as Annex I. The following provides a summary of the deliberations and conclusions by the meeting.

1. Survey and Early Warning

1.1 Situation in EMPRES countries

A summary of on-going survey activities and constraints in the EMPRES countries is provided in Annex II.

1.2 E-mail network

Some e-mail connections have already been installed in the participating countries (Saudi Arabia and Oman) and the liaison officers of the remaining countries were encouraged to follow-up with their respective FAO and UNDP offices on the establishment of e-mail connections. Apparently only minor problems remained to be solved to complete the set-up of the communication network.

1.3 Exchange of survey data

The importance of sharing detailed information with neighbouring countries as soon as possible after surveys are completed was stressed again. E-mail will greatly facilitate this information exchange. In this connection, the meeting stressed the urgent need to develop suitable software tools for the management and transmission of survey data.

1.4 Oman meeting on survey methods

The meeting appreciated the results and organization of the Expert Consultation on Desert Locust survey methods and procedures held under the EMPRES programme in December 1995 in Oman. It was recommended that other guidelines are reviewed and revised collectively in a similar manner.

1.5 Aerial surveys

The meeting recognised again the need to improve procedures and reporting for aerial surveys, as already discussed during the Oman meeting. In addition, the necessity to better coordinate ground and aerial surveys was stressed. The meeting noted the importance of aerial surveys in Yemen during the coming locust breeding season. In this connection it was recommended that the distribution of DLCO flying hours should cover Yemen, if possible. The current allocation of 40 flying hours for Somalia was considered excessive.

1.6 Joint border surveys

The meeting discussed the advantages of joint border surveys in comparison to a simple information exchange system. While participants recognised the benefits of such surveys for

certain key border areas (e.g. the Red Sea coastal areas near the Egyptian/Sudanese or the Sudanese/Eritrean borders) means and ways need to be explored to implement such joint surveys.

1.7 Monitoring/reporting systems

The meeting agreed that systems of monitoring and reporting Desert Locust activities and environmental conditions are best analysed first by the liaison officers in Egypt, Sudan, Eritrea, Ethiopia and Yemen through author contracts. The deadline for the author contracts should be extended until the end of July 1996. The individual country reports would subsequently be compared and joint recommendations would be developed through a TCDC (Technical Cooperation among Developing Countries) consultancy.

1.8 Flora of Saudi Arabia

Mr. Al-Shehri offered to look into the possibility of providing EMPRES countries with copies of the "Flora of Saudi Arabia". There was a general appreciation for this offer which would be a valuable contribution of Saudi Arabia to EMPRES.

1.9 Operational budget for surveys

The meeting noted that some countries still face problems with timely allocation of operational funds for regular surveys. It was concluded that more efforts need to be made to ascertain the availability of funds for such surveys.

2. Early Reaction

2.1 Situation in EMPRES countries

A summary of recent control activities and constraints is provided in Annex III.

2.2 Contingency planning

There was a general consensus on the importance of contingency plans and adequate contingency arrangements. It was felt that the preparation of contingency plans for Sudan, Yemen and Eritrea in the autumn of 1995 was very useful and should be repeated in other EMPRES countries. Planning officers have already nominated in Sudan and Yemen but require training. Other countries were encouraged to also nominate planning officers. It was concluded that national workshops in combination with suitable consultancies would be the most suitable first step for developing contingency planning further. It was also felt that the countries would eventually benefit from a regional workshop in which national experiences are exchanged.

2.3 Campaign evaluation

Draft guidelines for campaign evaluation were distributed during the meeting. The participants requested more time to study and comment on the draft. It was also concluded that other bodies, like for example the DLCC Technical Group, should make recommendations on the proposed guidelines.

2.4 Spraying equipment

The meeting identified training needs in a number of specialised fields connected to the use, calibration, registration, standardisation and maintenance of spraying equipment. It was recommended to train first specialists involved in aerial spraying operations. A regional training workshop was proposed in collaboration with DLCO-EA.

2.5 Safety and environmental aspects

Meeting participants drew again attention to the problem of obsolete pesticide stocks in EMPRES countries. It was noted that a FAO pilot project has recently started in Yemen which will address this issue.

It was noted that a number of EMPRES countries (Djibouti, Eritrea, Ethiopia and Yemen) do not have their own pesticide residue analysis laboratory. It was recommended to look into the possibility of strengthening DLCO's capacity in this field in order to develop a regional service for such countries.

The meeting identified a number of other areas related to safety and environmental aspects which should receive attention. This included links with LOCUSTOX project and making the results of that project available to the EMPRES countries.

3. Research

3.1 IGR and mycopesticide trials

IGR and mycopesticide trials had been planned in Sudan and Yemen but had not yet been implemented due to the lack of suitable locust infestations. Eritrea has also recently started to become involved in mycopesticide work and would like to do further research in this area. Ethiopia has conducted IGR trials with grasshoppers and expressed interest in future barrier trials with Desert Locust.

3.2 Remote sensing

The meeting was informed of the progress in Eritrea in developing a capacity for translating satellite images into vegetation maps of Desert Locust breeding areas. The importance of this capacity for the region stressed. The need was noted to link such maps with information on the distribution of suitable Desert Locust biotopes. The development of a similar capacity is under consideration in Oman which would be important for Oman itself as well as for surrounding countries.

3.3 Collaboration with the Commission for Controlling the Desert Locust in the Central Region

The meeting reviewed and discussed a proposal for a collaborative Desert Locust research programme in the central region. The participants commended the Central Region Commission for this initiative and expressed general support for the programme which foresees collaboration between EMPRES and the Commission. The programme will focus on priority research areas which are considered to be of immediate and practical importance for improving Desert Locust monitoring and control operations. A number of changes were proposed for the list of "possible research topics" attached to the proposal (see Annex IV).

3.4 Economic studies

The meeting was informed of the progress of the economic studies initiated by FAO in relation to the EMPRES programme. Participants will receive all reports coming out of these studies.

4. General matters

4.1 Training

The meeting discussed a draft outline for a collaborative training programme with the Central Region Commission. The programme is designed to strengthen the national training capacity in all Commission and EMPRES countries and would support a range of training activities from train-the-trainer courses to University degree training. General support for such a training programme was expressed by the meeting participants who felt that coordination of all training activities in the region, including bilateral training activities, is urgently needed in order to avoid overlap and to conserve resources. It was noted that EMPRES has at present allocated only modest resources for training. However, it was recommended that all EMPRES training activities should be channelled through such a collaborative training programme.

4.2 Agreement with EMPRES countries

The meeting recognised the need for an official agreement between FAO and EMPRES countries in order to facilitate operations of the EMPRES programme. Among the topics to be included in such an agreement will be:

- Allocation of sufficient national resources to maintain/establish a core capacity for Desert Locust monitoring and control operations.
- Allocation of resources through FAO.
- Agreement on EMPRES meetings (facilities, visas, other privileges).
- Importation of equipment and supplies.
- Information exchange.
- Agreement on TCDC consultants.
- Joint border survey.
- Use of equipment/supplies provided by FAO.

The meeting requested FAO to draft a legal document containing these topics and submit it to the governments through official channels for comments and approval.

4.3 Next meeting

The offer from Eritrea to host the next meeting of EMPRESS liaison officers was appreciated by all participants. A second offer was received from Egypt. FAO would look into the visa requirements for the participants. It was recommended to hold the next meeting before the end of 1996.

4.4 Work plan

The work plan prepared and adopted by the meeting is attached as Annex V.

Acknowledgements

The participants expressed their thanks to the government of Yemen, especially the Ministry of Agriculture and Water Resources and the General Department of Plant Protection and the Locust Control Centre for their excellent preparations and organization of the meeting and for their generous hospitality. The participants also expressed their thanks to FAO for the preparation of the documents and other preparations for the meeting.

Agenda

Opening

Adoption of Agenda

Adoption of report of 2nd meeting of EMPRES Liaison Officers

Status of Early Warning activities

- Survey operations - status/constraints (S. El Bashir and statements from countries)
- Oman meeting on survey methods (A. Al Abry)
- Status of establishing a communication network (M. Marsella and statements by countries)
- Proposed workplan for 1996 (Early Warning)

Status of Early Reaction activities

- Autumn/winter control operations - results/constraints (S. El Bashir and statements by countries)
- Preparation and implementation of contingency plans (F. Bahakim and statements by countries)
- Campaign evaluation and monitoring
- Equipment and training needs in relation to ULV spraying operations
- Safety and environmental aspects
- Proposed workplan for 1996 (Early Reaction)

Desert Locust Research

- Economic studies
- Microbial control and IGR trials
- Status of remote sensing project
- Other aspects on research
- Proposed workplan for 1996 (Research)

General matters

- Training
- Agreement of collaboration
- Proposed workplan for 1996 (General)

Finalization of workplan and recommendations

Other matters

Next meeting

Status of survey and early warning activities - country by country

Djibouti

Very limited survey activities were conducted due to lack of rains; the country was dry with no green vegetation anywhere. Recently the rainy season commenced in northern Somalia along the area bordering Djibouti, thus all scouts and survey teams have been alerted.

Djibouti is usually invaded by swarms of locust which develop in Somalia and other neighbouring countries. To deal with incoming swarms there is need for a good striking force within the country, yet at present there are no pesticides to handle any unusual situation.

Egypt

Regular surveys are conducted and monthly reports received from the locust control bases located in different parts of the country. Reports on incidence of rainfall and ecological changes are also received from the national Meteorological Authority as well as from other government departments located along the borders. Information about locust activity in the region is regularly received from the Secretariat of the Desert Locust Commission in the Central Region. Currently the two main active survey and control bases are at Abu Ramad and Abu Simbil on the southern borders of the country. All bases are linked to Cairo by telephone and radio. The e-mail connections will soon be installed. The Locust Control Division is well equipped with vehicles and application equipment.

Eritrea

Surveys are carried out by scouts who report regularly to the regional agricultural offices and the latter transmit information to the Ministry of Agriculture in Asmara. Officers of the Research and Extension Division of the Ministry of Agriculture have not been able to carry out field surveys. During the winter season (November 1995 - March 1996) the NRI and FAO team which was conducting investigations on locust monitoring, management and forecasting along the Red Sea coast of Eritrea, provided useful information on Desert Locust activity and ecological changes in the area. DLCO-EA has also carried out aerial surveys in the area and completed 25 flying hours from January 1996 up to date. The communications network was enhanced through the installation of more units bringing the total to 18 radio stations. In addition, a ground satellite receiving station (LARST) was installed at Asmara airport. Through the USAID support, more staff were trained on locust survey and control operations, as well as on general plant protection practises.

One of the main constraints is the lack of a distinct unit of plant protection since all plant protection activities, including Desert Locust survey and control, are managed by the Research and Extension Division. There is also an acute shortage of vehicles as only two out of the original four vehicles are available for survey and control operations (two vehicles have been destroyed by land mines). Ground survey operations on the north eastern coastal area of the Red Sea can not be conducted due to hazards of land mines. E-mail connections have not yet been installed because the supplier did not deliver the correct equipment, hence fast communication with other EMPRES offices and with FAO is not yet possible.

Ethiopia

Surveys are conducted by scouts who report information on rainfall and locust activity to the regional agricultural development and extension officers, and these transmit such information to the Plant Protection Division in Addis Ababa. During March/April of this year there were reports about rainfall in the eastern parts of the country hence scouts were requested to conduct weekly surveys and report their findings to PPD in Addis. Since January 1996, PPD is regularly receiving a summary of weather data every 10 days from the National Meteorological Service, and this will continue up to the end of the year. More staff have been trained on locust biology, identification, survey and control in collaboration with USAID.

The lack of vehicles and of operational budgets, especially in the regional agricultural offices, constitute major constraints. The proposed survey units at PPD headquarters in Addis have not been formed because the new structure of the Ministry of Agriculture is not yet finalised. In the mean time one of the four staff of PPD has recently been transferred to DLCO/EA to act as base manager at Dire Dawa. Ten radio sets and a fax machine ordered by FAO for EMPRES activities have been held by customs authorities who object to their importation into the country. In addition the e-mail connections which have not yet been completed are expected to be in service before the end of this month.

Oman

Surveys continued from July 1995 to February 1996 in areas which received sporadic rainfall. No Desert Locust infestations were recorded, although some grasshoppers were encountered. In August 1995, young hoppers of the Desert Locust were found in Wadi Nam in an area of about 50 ha, but ever since only scattered adults of solitary locust were reported. As for the grasshoppers, there was a marked increase in their number especially during the period from January to end of March 1996. It is worth mentioning that the locust control section is well connected to all parts of the country and that e-mail is now operating. No specific constraint is indicated by the EMPRES liaison officer.

Saudi Arabia

Surveys are carried out by 140 agricultural branches in different parts of the country. Each branch has at least one scout whose responsibility is to survey and send monthly reports to the Locust Control Centre in Jeddah. The survey information is further checked by experts from the Centre who visit various sites to verify the incoming reports from the agricultural branches. Daily reports about the weather are also received from the Meteorology Department. The Centre is very well connected to the different regions within the country and to the outside world by means of telephone, fax, telex, e-mail and radio.

Despite the excellent communications facilities, there are some areas which are not easily accessible because of the vastness of the country. Hence there is need for more radio sets to be placed in those remote areas. Communications with some of the neighbouring countries where locust breeding often occurs are not well established.

Somalia

During the period from January to March 1996, surveys were conducted along the coastal and sub-coastal areas of Northern Somalia. The rainy season was late and in general it was a poor rainy season, hence only scattered populations of solitary Desert Locust were encountered.

Sudan

Fifteen survey teams were deployed in June 1995 in different parts of the summer breeding area. In July several swarms of Desert Locusts were reported entering the country along its western borders. Some of these invading swarms started egg laying in August 1995 and hatching was reported in the third week of the same month. On November 1, 1995, many swarms invaded Tokar delta along its southern border, and the invasion continued until the first week of December. The main constraint was the prolonged delay of release of operating funds by the Ministry of Finance.

Yemen

The most recent survey reports were received on March 15, 1996. Regular monthly reports are dispatched by scouts, especially in the regions of Mareb, AlGowf, Tihama, the coastal areas of Aden and Saada. In recent months radios were installed in Aden, Hudeidah, Shabua, Attaq, Mayfaga and Say'un, and these have greatly improved communication between the Locust Centre and the different areas. Last July a group of staff (25) were trained in various aspects of locust survey and control practices, and the training programme was supported by the Arab Organisation for Agricultural Development.

Security situation in some parts of the country (Mareb, Al Gowf and Saada) sometimes hinders normal survey activities. Nomads in these areas often hijack vehicles which discourage

officials from visiting those places. It is also to be noted that some areas in the south of the country still contain land mines which render ground survey a risky undertaking. Budgetary constraints also limit survey operations (the 1996 budget is not yet approved). Another serious constraint is the lack of qualified persons to replace retiring local scouts, especially in Mareb and Al Gowf.

DLCO-EA

Aerial surveys were conducted in Sudan during the summer and early winter breeding seasons. In Eritrea aerial surveys were carried out in the summer and winter breeding areas. Surveys were also conducted in Ethiopia all along the summer breeding areas of the Tigrey region. Some vehicles were provided to the above three countries in support of their national ground survey teams. FAO provided support for the survey and control activities of the Organisation by paying for 300 flying hours which are to be allocated for Djibouti, Eritrea, Ethiopia, N. Somalia, Sudan and Tanzania (100 flying hours for Red Locust control in the latter). So far approximately 75 flying hours have been used and the remaining balance will be utilised according to the agreed plan of operation as stated in the agreement with FAO. All aircraft are fitted with GPS equipment. Currently two aircraft are positioned in Addis Ababa to cater for any operations in Ethiopia, Djibouti and N. Somalia; one aircraft is positioned in Eritrea and another one will soon be added to it for operations in Eritrea and Sudan. E-mail connections are expected to be completed very soon. Efforts to obtain synoptic charts from the Ethiopian Meteorological Service are in progress. The main constraint is a lack of adequate operating expenses. There is also an urgent need for the overhaul of three aircraft engines.

Status of early reaction activities - country by country

Only four countries experienced Desert Locust infestations during the last summer and winter seasons, and these are:

Eritrea

During the summer season of 1995 heavy infestations were detected in the western low lands and the south eastern plain. Both aerial and ground control operations were carried out, the first by DLCO-EA and the latter by the national control teams. In general the control operations were successful in eliminating most of the swarming populations.

Saudi Arabia

During the last winter season 48 swarms invaded the country from East Africa in addition to local breeding, hence more than 120,000 ha were treated. Two helicopters (spending 500 flying hours) and 50 ground control teams participated in the campaign. The current annual budget for Desert Locust control activities is US\$ 2.3 million. At present the country is almost free of any locust activity.

Sudan

During the summer season of 1995, a total infested area of 24,439 ha was treated using four fixed wing aircraft (treating 12,700 ha) and ground control teams (treating 11,739 ha). In the winter season, the total infested area that was treated by aerial application (using one aircraft) of insecticides was 13,800 ha all of which was located in the Tokar delta.

Yemen

The country was invaded by three swarms which were reported in the Tihama coastal plain in October 1995. Conditions were not favourable for breeding, hence the swarms left the area and no control operations were mounted.

Discussion Paper on a Desert Locust Research Programme in the Central Region

List of possible research topics

1. **Case studies**
Collection and analysis of data on Desert Locust populations, development of methods to quantify populations.
2. **Barrier treatments (*)**
Field trials with new pesticides suitable for barrier treatments.
3. **Efficacy of control operations (*)**
Develop suitable methods for monitoring routinely the efficacy of control operations.
4. **Environmental monitoring**
Studies on the effect of locust control operations on the environment. Studies on the risks posed by locust control operations to humans and livestock.
5. **Safety aspects**
Development of suitable methods for monitoring cases of accidental exposure, poisoning and pesticide pollution. Collection and analysis of data.
6. **Survey procedures for locating/assessing hopper populations (*)**
Developing improved survey methods/procedures, including methods for assessing size of infested areas and systematic target search.
7. **Survey procedures for locating/assessing adult populations (*)**
Improve methods for locating/tracking adults and develop procedures for estimating the total number of adults (including swarm sizes and densities) in a given area.
8. **Data management tools**
Developing databases and procedures for processing data relevant to locust survey and control activities.
9. **Correlation between rainfall/Desert Locust populations (*)**
Data on rainfall, Desert Locust populations and other parameters are collated and correlated in order to obtain indications on the effect of control operations on Desert Locust populations.
10. **Economic studies**
Development of crop loss assessment methods, collection and analysis of data.

(*) Research teams need to have easy access to Desert Locust breeding areas which frequently experience infestations.

1996 Workplan

Early Warning activities

- Visit of communication consultant to Saudi Arabia, Oman, and Yemen
- Establish outstanding e-mail connections
- Computer programme for survey data storage and exchange
- Author contracts and TCDC consultancy on local information systems to monitor environmental conditions (involving scouts, nomads, other Government officials), draft terms of reference attached

Early Reaction activities

- Campaign evaluation and monitoring (authors contracts)
- National meetings and consultancy to develop further contingency planning, training of planning officers.
- Regional training workshop (in collaboration with DLCO) on aerial control.
- Establish collaboration with LOCUSTOX project (training, consultancy visit, supplies)

Research

- Development of collaborative research programme with the Commission for Controlling the Desert Locust in the Central Region.
- IGR trials
- Mycopesticide trials
- Remote sensing work (Eritrea and Oman)
- Economic studies (case studies in Sudan)
- Research on survey procedures and strategies (contribution of the Netherlands to EMPRES)

General

- Visit of Prof. El Bashir to Ethiopia, Eritrea, Sudan, Saudi Arabia and Yemen
- Development of collaborative training programme with the Commission for Controlling the Desert Locust in the Central Region.
- Develop agreement of collaboration with EMPRES countries (inter-governmental meeting)
- Pursue discussion of contingency fund with donors