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UNITED NATIONS CONCILIATION COMMISSION FOR PALESTINE

MEMORANDUM DATED 25 JULY SUBMITTED BY THE TECHNICAL  
COMMITTEE TO THE CONCILIATION COMMISSION

transmitting a report by Mr. Delbès, agricultural expert,  
entitled "Expert report on the condition of the orange  
groves abandoned by the Arabs in the State of Israel".

The Technical Committee has the honour to transmit to the Conciliation Commission the expert report drawn up by Mr. Delbès on the condition of the orange groves abandoned by the Arabs in the State of Israel, and Mr. Delbès' reply to the information requested of him by telegram dated 7 July 1949.

In connection with this reply, it must be pointed out that Mr. Delbès himself saw at Lydda only about a dozen hydraulic installations, half of which were in operation and the remaining half unserviceable. The overall figures quoted in his reply merely reproduce the information supplied by the Israeli Deputy Director of the Office of Arab Property at Lydda.

With regard to the body of the report, moreover, the percentage of war destruction mentioned on page 6 should be stressed, together with the need, emphasized on the same page by Mr. Delbès, of restoring the hydraulic installations, and the shortage of permanent or seasonal workers.

It will be noted from page 11 that while conservation measures are being taken in 25 per cent of the plantations, 20 per cent of the total number of plantations might be saved if immediate maintenance measures were applied.

These maintenance measures, however, are themselves dependent on the restoration of the hydraulic installations.

The Technical Committee intends to request the Israeli authorities to submit at the earliest possible moment a list of the supplies required for the immediate restoration of the plantations capable of salvage.

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EXPERT REPORT ON THE CONDITION OF THE ORANGE GROVES

ABANDONED BY THE ARABS IN THE STATE OF ISRAEL

Despite the very limited time allowed us, we were able to pay a brief visit to the principal areas of the State of Israel where the orange groves\* abandoned by the Arabs are situated.

These visits took place on 7 and 8 July in the REHOVOTH, JAFFA and TULKARM area, in the company of members of the Technical Committee of the Conciliation Commission for Palestine, on 9 July in the RAMLE area, on 10 July in the LYDDA area, and on 11 July in the district of ACRE,

We were accompanied during our tour by three officials from the Israeli Ministry of Agriculture -

Mr. J.D. OPPENHEIM, Head of the Citrus Fruit Growing Service

Mr. LICHTENSTEIN, Instructor in Citrus Fruit Growing

Mr. A.H. ZIMIROVSKY       "       "       "       "       "

and, in addition, in the LYDDA area, by Mr. ZAGORSKY, Deputy Director of the Arab Property Section.

The findings have been based:

- (a) on a detailed examination in each district of a small number of plantations,
- (b) on a rapid and general examination of the areas traversed,
- (c) on information collected locally.

I. DISTRIBUTION OF THE ORANGE GROVES AND ASSESSMENT OF THE DAMAGE

The plantations abandoned by the Arabs in Israeli territory are situated in the districts of JAFFA, RAMLE, TULKARM and ACRE. Their precise area is difficult to determine accurately. The Israeli authorities have promised to draw up a statement of the areas village by village, on the basis of the land survey plans, but, we are informed, this work will take about two months to complete. Furthermore,

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\* In this report the term "orange groves" is taken to apply to all the cultivated varieties belonging to the Citrus genus; the orange tree (*Citrus aurantium*), the mandarin orange tree (*Citrus nobilis*), the lemon tree (*Citrus Limonum*), the citron tree (*Citrus Medica*), the grapefruit tree (*Citrus decumana*), etc.

the data in the land register are disputed by the Israelis who claim that the Arabs gave instructions for orchards which in nearly every case contained other fruit trees (apple trees, plum trees, pear trees, pomegranate trees, etc.) and in some of which orange trees occupied only 25 - 50% of the area of the plot, to be entered under the heading "Citrus".

By this method larger shares in the export quotas and larger distributions of fertilizers could be obtained. From the taxation standpoint, however, it had the disadvantage of making the assessments higher than they should have been.

The information we collected on the spot and data extracted from various publications\* and from a 1947 report on citrus fruit growing in Palestine have enabled us to draw up the following table. These figures, which should merely be regarded as rough approximations, could nevertheless be used as a basis until such time as the areas of the Arab plantations are accurately known.

DISTRICT	Total area of the plantations (dunums)	Arab Plantations (dunums)	Area at present destroyed	Percentage of destruction	Percentage of plantations seen or visited
JAFFA	92,000	42,000	30,000	70%	30%
RAMLE	68,000	40,000	20,000	50%	30%
TULKARM	35,000	30,000	10,000	33%	20%
ACRE	7,000	6,000	3,000	50%	70%
	202,000	118,000	63,000		

## II. PLANTATIONS VISITED

In each district a number of plantations were singled out for thorough inspection. The findings for each such plantation are as follows:

\* Economic organization of Palestine      - 1938  
Statistical abstract of Palestine      - 1944 - 1945.

DISTRICT OF JAFFA

Village of WADI HANIN - The plantation has been neglected for two years - orange and grapefruit grafted on sweet lemon - sandy soil - advanced state of deterioration, cannot be restored. Hydraulic installation destroyed.

Village of BEDEDJAN - Orange grove recently set on fire. Sandy soil - grafting on sweet lemon - sap is still flowing at the base of the main branches, but any attempt to restore would be futile. Plantation lost - hydraulic installation destroyed.

DISTRICT OF RAMLE

Village of SARAFAND EL AMAR

1. Plantation of fully grown lemon trees which has been neglected for a year. Clay soil - grafting on sweet lemon. Will still survive this summer, but in order to be saved will require cultivation from next winter - if it is left without care, it will be completely lost by the autumn of 1950.

2. Plantation of grapefruit and orange grafted on bitter-orange trees - heavy clay soil. Partly kept up by the Israelis (one tilling, and some irrigation) - irregular fruit-bearing, and mediocre crop. This plantation, which belongs to the EL HUSSEINI family, can be regarded as saved.

3. Very fine grove of grapefruit and orange trees, covering an area of 50 dunums - well kept up by the Israelis. The hydraulic installation has been repaired with a GROSSLIN 18 H.P. semi-diesel engine. Will produce a profitable crop this year.

DISTRICT OF TULKARM

Village of RAS EL AIN - Plantation of grapefruit and orange trees belonging to Mr. CHAMIR. Part has been looked after and can be regarded as saved. The motor pump has been repaired and converted to work by electricity. Heavy clay soil - grafting on bitter-orange trees. The neglected portion will be partially saved if it is irrigated in August and September. Poor crop - a depôt of ammonium sulphate for fertilizing the plantations in the area has been installed in this farm.

Village of JALZULIA - Plantation of 120 dunums belonging to Mr. Ahmed CHACCA. Clay soil - orange grafted on bitter-orange - some Arab labourers who have remained are working on the upkeep of the plantation under the direction of the Israelis. The plantation is being kept in good condition, but is over-irrigated. Traces of gummosis at the base of the trunks.

NABULSI Farm - Plantation of 1500 dunums consisting of 90% orange trees, and 10% grapefruit and lemon trees. The irrigation plant which was destroyed has been partially repaired since the area was cleared of mines. Mixed clay and sandy soil, with clay pockets - Grafting on bitter-orange. 300 dunums on the low ground froze last winter. 700 dunums have been cared for during the last two months and brought back into good condition. The rest has suffered badly, but could be partially saved if work were done on it before the end of the summer.

2nd NABULSI Farm - Hydraulic installation partially repaired. The plantations of fully grown orange trees which have been neglected for a year have suffered badly, and will be practically lost at the end of the summer - Sandy soil - Grafting on bitter-orange and sweet lemon. On the other hand, a young plantation including apple trees, plum trees, orange trees and mandarin trees is being well looked after by the Israelis.

#### DISTRICT OF ACRE

#### Villages of EL-HARADJ - NAHR - TELL - KABIRI -

Plantations on clay soil, grafted partly on bitter-orange and partly on sweet lime. Mixed with other fruit trees. The area of orange groves in this group of villages is 2000 dunums, only 200 of which are cared for. The hydraulic installations have been demolished - In the lower portion irrigation could be carried out with the water from a small river. About 60% of the plantations are entirely lost; 20% others could be partly saved if they were cared for immediately.

Village of MAZRAA - Part of the Arab population has remained on the spot, but is not looking after the orange groves - mixed plantations. More than half are lost, and the others will rapidly go to ruin.

Village of AZZIH - Soil a mixture of sand and clay. Groves are mixed, and overcrowded. Can only be tilled by means of animal-drawn ploughs, or by digging. Though neglected for over a year, they are still in fairly good condition; but they will rapidly go to ruin if they are not watered regularly. The hydraulic installation has been destroyed. Some of it is under repair, but there is a shortage of spare parts.

Village of NAKOURA - Groves on clay soil, frequently mixed with other fruit trees. A fine orange grove of 50 dunums has been tractor-ploughed and irrigated. While we were there, a group of young Israeli boys and girls were working in the grove. Blossoming took place under abnormal conditions, and the crop will hardly pay for the upkeep.

### III - HORTICULTURAL FEATURES OF THE ARAB GROVES.

Generally speaking, the Arab groves when neglected fare less well than the Israeli groves. This is due to the use of agricultural methods which are less up-to-date and not always suited to the nature of the soil on which the groves are found. The Israelis usually follow the instructions given them by the technical services of the Department of Agriculture. The Arabs, on the other hand, have only partly carried out the official instructions.

a/- Denseness of groves - In the Jewish groves, the distance between the trees is 4 metres by 5 or 4 metres by 4, making 50 or 62 trees per dunum respectively.

In the Arab groves, the distance is usually reduced to 3 metres by 4, and sometimes even 3 metres by 3, giving 77 or 108 trees per dunum. After the sixth year, tilling has to be done with a swing-plough, as tractors cannot pass between the trees. When the grove is full-grown, the trees completely cover the surface of the soil, to the detriment of ventilation.

b/- Heterogeneous nature of the groves - In the Arab groves it is not uncommon to find along with citrus fruits other species of fruit trees, e.g., apple trees, pear trees, pomegranates etc. Sometimes, even garden produce is grown between the trees.

Among the Arabs, the land is more minutely parcelled out than among

the Israeli. There are large numbers of groves, small in area, belonging to smallholders and irrigated by low-power plant and shallow wells.

c/- Choice of stock according to the nature of the soil - In Palestine the sweet lemon is used as stock in the sandy soil of the coastal zone, and the bitter orange in the clay soil of the interior. When grafted on lemon, the trees begin to bear well from the fifth year onwards, whereas with bitter orange this takes eight years. But if the lemon is employed on clay soil and the bitter orange on sandy soils, the resistance of the trees to disease, atmospheric hazards, and most of all to neglect, is considerably reduced. This has not always been borne in mind in the Arab plantations, and we noted that some of the groves in the coastal area were grafted on bitter-orange trees, while in others in the interior, the basic stock was sweet lemon.

d/- Training and pruning - The methods in general use for the training and upkeep of trees are not always applied in the Arab groves. Pruning for shape and health is often neglected. Hence it is not uncommon to find trees that have grown on several stocks, making it difficult to deal with gummosis found at the base of the trunk - a disease very prevalent in Palestine.

e/- Over-irrigation - In the orange groves where water is abundant, the Arabs generally tend to overdo irrigation. Also, the trough system of watering, in which the water comes directly into contact with the base of the trunk and the roots, greatly encourages the development of wet-rot, especially in clay soil where the sub-soil is not very permeable.

f/- Yield - In a reasonably kept grove during the maximum productive period (ten to eighteen years) the average annual yield per dunum is estimated at 60 to 70 cases among the Arabs, and 80 to 90 cases among the Israeli.

#### IV. NATURE OF DESTRUCTION

The destruction noted in the regions we have visited is due :

- to military operations (trees cut down, passage of armoured vehicles, fires etc.); the proportion of such destruction does not exceed 5 per cent.

- to the abandonment of plantations and the cessation of all maintenance as from the beginning of the Palestinian war; proportion 95 per cent.

In many cases, plantations have had to be abandoned owing to the destruction of almost all hydraulic installations.

In addition, the herbaceous vegetation which grow spontaneously in the abandoned plantations during the spring, and dried up in the first heat of the summer, has led in recent months to fires which have destroyed a very large number of trees.

#### V. CONSERVATION MEASURES TAKEN BY THE ISRAELI AUTHORITIES

The measures taken by the Israeli Government to conserve the plantations abandoned by the Arabs are dependent on the restoration of the hydraulic installations. Weeding and ploughing have very little effect unless they are followed by regular watering. For this reason, the instructions given by the Israeli authorities for the maintenance of Arab plantations, including those classed in the third and fourth categories, are purely formal and inapplicable in very many cases. We have been informed that a specialist has been sent to England and Germany to buy the spare parts required for the repair of engines and pumps; but up to now deliveries, it appears, have been small.

In addition, there appears to be a shortage of skilled labour. Before last year's military operations the Arabs not only maintained their own plantations but supplied Israeli planters with large numbers of permanent and seasonal workers, most of whom have now left the State of Israel.

In the plantations which are being looked after, the work done consists in mechanical ploughing once or twice with disc ploughs, the cutting of irrigation canals, periodical watering of the plantations, and, in very rare cases, fertilizing at the rate of 1 kg. of ammonium sulphate per fully-grown tree.

There is no doubt that the Israelis have given preference to adult plantations of full strength which are likely to give a maximum yield with a minimum of maintenance cost. This applies equally to other plantations (apples, plums, pears, etc.).

As no work was done during the summer of 1948, the trees flowered



under abnormal conditions, and the next crop, even in the plantations looked after during 1949, will be very small.

In most cases, the value of the crop will barely cover maintenance costs.

Given the present cost of labour, it is considered that to cover expenses a plantation must produce 35 cases of fruit, each of 33 kilogrammes net, per dunum.

Our investigations show that the Israeli authorities have given most attention to the Ramle and Tulkarm districts. In the Jaffa district very few plantations have been touched, and in the Acre district barely 250 dunums out of 6,000 are under maintenance.

It can be assumed that of the total of Arab plantations on Israeli territory, conservation measures have so far been taken in hardly more than 25 per cent.

#### VI. PROSPECTS OF RESTORING THE ABANDONED PLANTATIONS

The restoration of the plantations where no maintenance measures have been taken for over a year will probably be difficult. To revive those trees which could still be saved, regular watering would have to be undertaken at once; but this is impossible in practice. Moreover, the salvage of 30 per cent of the trees in a plantation where 70 per cent are beyond help can only be of slight interest.

In those countries of the Mediterranean basin which, while not so hot as Palestine, produce oranges (Italy, Spain, North Africa) old or deteriorated plantations are regenerated by cutting back the trees. In the Palestinian climate this process does not give good results and previous attempts were unsuccessful.

We have found that neglected orange and mandarin trees degenerate much faster than lemon and grapefruit trees.

Taking into consideration the agrolnomical and biological factors referred to above, it may be estimated that in sandy soils and the sea sand along the coast, a plantation of orange trees grafted on to sweet lemon suffers a loss of 60 per cent in the first year. By the end of the second year it is completely destroyed.

In the clay lands of the interior, which better retain the natural humidity of the soil, and where a large percentage of trees are grafted on to the bitter orange, the loss is 30-40 per cent in the first year, rising to 60-70 per cent in the second year.

Generally speaking it may be anticipated, according to the stock and the soil in each case, that if the abandoned plantations remain in their present condition, they will be almost entirely lost by the end of 1949 or 1950.

#### VII. EXPERT ASSESSMENT OF DAMAGE

A detailed survey by experts to assess the damage suffered by each plantation would require eight experts and a period of about two months. These experts would work in teams of two.

In order to ensure uniformity and avoid differences of estimation, they should be given a questionnaire covering a number of clearly-defined items. The information obtained on the spot would then enable them to assess losses and damage on a uniform basis.

#### VIII. INFORMATION REQUESTED OF THE ISRAELI AUTHORITIES

We have requested the representatives of the Ministry of Agriculture of the State of Israel to supply us with certain information on citrus cultivation in general, and the Arab plantations in particular.

The authorities asked for a period of eight days to draw up a brief report to be transmitted by the Israeli Ministry of Foreign Affairs to the Technical Committee of the Conciliation Commission. A time limit of two to three months was requested for the drafting of the full detailed report.

With this end in view we have sent the authorities a questionnaire, a copy of which is attached.

The authorities were unable, when we passed through Tel-Aviv, to hand us the map of plantations which we also requested, owing to the fact that the official in charge of it was away.

#### IX - PROSPECTS FOR CITRUS FRUIT-GROWING IN PALESTINE

Both Arab and Israeli orange groves have suffered considerable damage from the military operations in Palestine. Their maintenance has also been neglected since the beginning of the Second World War, when exports to Europe became very difficult if not impossible.

This impression is confirmed by the statistics we have been able to consult and in particular by a report of the Citrus Palestine Board for 1947.

The total area of the plantations, which in 1938-1939 was estimated at 300,000 dunums, appears to have fallen to 266,000 in 1945 and to about 230,000 in 1947. It is from that time that the statistical tables begin to include columns headed "Neglected Areas" and "Abandoned Areas", the figures for which in 1946 were 8,000 and 11,500 dunums respectively.

In travelling through the plantation areas one very rarely encounters young plantations, but many abandoned and moribund orchards are to be observed. In the Israeli area between NATHANIA and HAIFA, we were able to observe numerous plantations which had been recently set on fire, and some of them were still burning.

The following table shows the decline in production and exports between 1938 and 1947:

YEAR	TOTAL PRODUCTION (Cases)	EXPORTS (Cases)
1938-1939	19,000,000	15,000,000
1939-1940	12,000,000	7,500,000
1940-1941	11,000,000	109,000
1941-1942	9,800,000	177,000
1942-1943	5,000,000	391,000
1943-1944	9,000,000	1,000,000
1944-1945	7,200,000	2,000,000
1945-1946	9,000,000	4,800,000
1946-1947	11,000,000	7,700,000

In 1948-1949 the Israeli zone would appear to have produced 6,000,000 cases, of which 3,900,000 were exported.

The shortage of labour which has been experienced since the departure of the Arabs and the very high wages which are now paid to agricultural workers (an average of 175 Israeli piastres a day) make it impossible for Palestine production to compete in the European markets with other producing countries, such as Italy, Spain and North Africa.

It is doubtless for that reason that all the efforts now being made to promote cultivation are generally concentrated exclusively on fully-grown plantations in good condition which are capable of giving a remunerative yield with a minimum of labour. Special attention is rarely given to young plantations or to those which have passed the stage of maximum production.

In view of all these considerations and of the country's present state of economic unbalance, it will probably be many years before the Palestine citrus fruit-growing industry recovers its former prosperity.

#### X. CONCLUSIONS

The rapid survey we have conducted in the State of Israel has enabled us to reach the following findings:

1. The area of the orange groves abandoned by the Arabs is about 118,000 dunums, 63,000 of which may be considered lost.
2. Conservation measures have been applied to about 25% of those plantations, i.e. 29,000 dunums. The other plantations, covering an area of 26,000 dunums, might still be saved if immediate maintenance measures were taken.
3. The plantations maintained by the Israelis are for the most part in the districts of Ramle and Tulkarm.
4. The measures to be taken for maintaining the abandoned plantations are dependent on the repair of the hydraulic installations.
5. If the plantations to which no measure of conservation has hitherto been applied do not shortly receive appropriate care, they will be almost entirely lost by the end of 1949 or the end of 1950, as the case may be.

BEIRUT, 19 July 1949

(signed) M. Delbès

#### INFORMATION REQUESTED BY TELEGRAM OF 7 JULY 1949

"The General Committee requests the Technical Committee to provide it with the following information relating to a specific area:

1. Proportion of the total area of orange groves at present irrigated;
  2. Proportion of orange groves destroyed as a result of the war".
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For the purposes of this survey, we selected the village of LYDDA. This choice was made because all the plantations there belong to Arabs and there is in the village a branch of the Office of Arab Property.

The area of ground included within the administrative district of LYDDA is 22,467 dunums, of which about 2,200 are used for the cultivation of citrus fruits. Orange groves take up 90% of that area, the remainder being covered by lemon trees, mandarin orange trees and grapefruit trees.

The soil is very clayey and grafting has been carried out half on bitter orange trees and half on sweet lemon.

Up to the present about 1,400 dunums, i.e. rather more than 60%, are being looked after. The remaining 800 dunums, which for the most part consist of small, isolated plots, have little chance of being restored.

Before 1939, all these plantations were watered by sixty hydraulic installations. During the 1939-45 war, the orange groves were neglected and some were sold. At the time of the Palestinian war, about fifty were still capable of bearing.

During the military operations of July 1948, all those installations were destroyed. To-day, one year later, 36 have been repaired.

The Lydda area is one of those in which the Israelis seem to have made their greatest effort.

BEIRUT, 19 July 1949

(signed) M. Delbès

QUESTIONNAIRE SUBMITTED TO THE ISRAELI AUTHORITIES

1.- AREA OF THE PLANTATIONS BY DISTRICT

a - Israeli villages

b - Arab villages

Show for each village the area occupied by each variety.

2.- EXAMPLES OF EXAGGERATIONS OF AREA IN CERTAIN ARAB VILLAGES

Give the names of the villages and of the owners, the numbers of the blocks and plots, and entries in the land register.

Show how these exaggerations have been detected, and give the reasons for them.

3.- DISTRIBUTION OF PRODUCTION BETWEEN ISRAELI AND ARAB PLANTATIONS.

Per dunnum and per variety.

4.- DAMAGE TO EQUIPMENT OF ARAB PLANTATIONS DURING THE WAR.

a - Amount and kind

b - Proportion of total.

c - Amount already repaired and again in use.

d - Amount at present unserviceable but capable of being repaired.

5.- AREA OF ISRAELI PLANTATIONS ABANDONED SINCE THE WAR

By districts and if possible by villages.

6.- WORKING COST OF A PLANTATION OF ONE HECTARE (10 dunums)

From the planting of the trees to the age at which production covers the cost of maintenance, i.e.:

5 years for plantations grafted on sweet lemon,

8 years for plantations grafted on bitter orange.

7.- MAP OF THE PLANTATIONS