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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
INTERNATIONAL DEVELOPMENT ASSOCIATION

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SECOND AGRICULTURAL CREDIT PROJECT  
JORDAN

April 14, 1967

Projects Department

CURRENCY EQUIVALENTS

US \$1	=	Jordan Dinar 0.3571 (3571 mils Jordan)
JD 1	=	1,000 mils = US \$2.80
JD 1,000,000	=	US \$2.8 million

WEIGHTS AND MEASURES

Metric System

One dunum	=	0.1 hectare
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J O R D A N

SECOND AGRICULTURAL CREDIT PROJECT

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ONE MAP

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This appraisal report is based on the findings of a mission which visited Jordan from September 16 to October 6, 1966. The mission was composed of Messrs. P.A. Courbois and H. von Oppenfeld.

## J O R D A N

### SECOND AGRICULTURAL CREDIT PROJECT

#### S U M M A R Y

i. The Government of Jordan has requested an IDA credit to enable the Agricultural Credit Corporation (ACC) to finance part of the second stage of its lending program. The proposed credit of US\$3 million would supplement ACC's own resources to permit lending for the Project of US\$5 million over a four-year period. The program is within the framework of the Seven-Year Development Plan 1964-1970, and aims at the improvement of Jordan's limited land and water resources and their development for fruit and vegetable production.

ii. In December 1963, IDA extended a first Credit of US\$3 million (IDA Credit 44-JO) to the Government of Jordan to support the first stage of the lending program. Progress of the Project was satisfactory and there was a ready response from farmers to the opportunities afforded in the four main areas of lending, i.e. farm water supply, livestock development, farm mechanization, and land reclamation. The Credit was fully disbursed by April 1966, and since then ACC has continued the program initiated under the IDA Credit, at a reduced level with a short-term advance from U.S.AID and its own resources, which are inadequate for meeting the demand for credit.

iii. As with the first Credit, the Project would include land reclamation and improvement, farm water supply development, and farm mechanization, but there would be greater concentration on tree crop and vineyard establishment and on-farm development within Government irrigation schemes.

iv. The total Project cost would be US\$6 million. In addition to the IDA Credit of US\$3 million, ACC would provide US\$2 million and the farmers themselves the remaining US\$1 million. The Project is technically sound and economically justified. Estimated benefits both to farmers and the national economy are substantial. The Project is suitable for an IDA credit of US\$3 million.

## J O R D A N

### SECOND AGRICULTURAL CREDIT PROJECT

#### 1. INTRODUCTION

1.01 The Government of Jordan has applied for a second IDA credit to enable the Agricultural Credit Corporation (ACC) to continue its lending program within the framework of its Seven-Year Development Plan 1964-1970. The Government's request for a credit of US\$5.8 million to help finance ACC lending program over a four-year period was scaled down to US\$3 million. The credit of US\$3 million would supplement ACC's resources to permit a lending program of US\$5 million over a four-year period.

1.02 In December 1963, IDA extended a first Credit of US\$3 million (IDA Credit 44-JO) to the Government of Jordan to support the first phase of its lending program. The progress of the Project was satisfactory; the Credit was fully disbursed in April 1966, slightly before the closing date of June 30, 1966. Since then, ACC has been able to continue the lending operations initiated under the IDA Credit, from its own resources and with a short-term advance from U.S.AID; but its resources, which are now restricted to collections, are inadequate for meeting the demand for credit.

1.03 This report is based on information prepared by the Government of Jordan and on the findings of an appraisal mission which visited Jordan in September-October 1966, composed of Messrs. P.A. Courbois and H. von Oppenfeld.

#### 2. BACKGROUND

##### A. General

2.01 Jordan has recently revised its Seven-Year Development Plan 1964-1970. The Government's major goal is to reduce the deficit in the external balance of trade and the dependence upon external budget support. The agricultural sector is expected to contribute significantly to the attainment of this goal, and substantial investments are planned to increase the agricultural output.

2.02 Jordan's GDP expanded rapidly by 10 per cent per annum from 1959 to 1964. Aided by two good harvests during this period, the growth rate in agriculture (17 per cent per annum) was even higher. Exports of agricultural products also increased by about 17 per cent per annum on the average. They constitute 55 per cent of total exports. In 1964, agriculture represented 25 per cent of GDP and accounted for 35 per cent of the 0.5 million labor force. Wages of unskilled laborers have risen in the last few years to a level ranging from JD 0.4 to 0.7 per day (US\$1.15 to

US\$2.00). Although Jordan has little registered unemployment, there is scope for additional employment of family labor and of the predominantly rural refugee population through the agricultural development which would be generated by the proposed Project.

### B. Land and Water Resource Development

2.03 Jordan has a land area of 9.7 million ha and supports a population of about two million. Eighty-seven per cent of the land area receives less than 200 mm annual rainfall and is unsuitable for cultivation except in small areas where irrigation is feasible. Although not more than 60,000 ha, or less than one per cent, was irrigated in 1963, this area accounted for about 30 per cent of agricultural production.

2.04 Surveys of water resources indicate that an additional area of about 160,000 ha can be irrigated. Water development is being planned and supervised by the Natural Resources Authority (formerly the Central Water Authority), with the assistance of internationally recognized consultant firms <sup>1/</sup>.

2.05 New farm units of not less than 30 dunums (three hectares) have been established in large government irrigation schemes from newly reclaimed lands and from larger farms divided under a land reform program. With intensive fruit and vegetable production these farm units are viable. Former owners of larger farms subject to the land reform program have been permitted to retain units up to 200 dunums (20 ha) of irrigated land.

2.06 Minor irrigation works, involving mainly groundwater development and well construction, have been carried out by progressive farmers who frequently sell surplus water to other farmers. Well construction is subject to licensing and supervision by the Natural Resources Authority. This development has been encouraged by loans under the first IDA Credit.

### C. Agricultural Services

2.07 The Ministry of Agriculture has been weak and provided little assistance to farmers borrowing under the first IDA Credit. ACC itself filled the gap, however, by improving and expanding technical services to its borrowers. In recent years the Government of Jordan has significantly improved agricultural research and education, and steps have now been taken to strengthen the agricultural extension services. These measures, allied to the continued provision of technical services by ACC and the industry and skill of commercial farmers, will be adequate for the successful operation of the proposed Project.

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<sup>1/</sup> Harza Engineering Company and Sir Murdoch McDonald and Partners.

2.08 Considerable progress has been made in tackling the problems of marketing of agricultural produce. A marketing bureau has been set up to carry out research on markets and related problems of processing, storage and transportation and to promote the development of marketing facilities. In line with recommendations of a Government/UNDP market research team, the Government has established two farm marketing centers, with facilities for produce weighing, grading and shipping. The city market of Amman has been relocated and reorganized to improve the efficiency of wholesale distribution. Steps have also been taken to improve packaging, transport and quality control in order to increase exports of fresh fruit and vegetables to Kuwait, Saudi Arabia and Iraq.

2.09 Prospects for growth of internal demand are good, and exports of fruit and vegetables have grown at an annual rate of 16 per cent over the past five years. Tomatoes, melons and citrus are the chief export commodities.

#### D. ACC's Progress and Experience Under First IDA Credit

2.10 The first IDA Credit became effective in April 1964 and was disbursed by April 1966 (ACC was the executing agency). The US\$3 million Credit assisted ACC in making development loans to farmers under a US\$4.5 million loan program. These development loans have enabled farmers to reclaim land not previously cultivated and to intensify production through water supply development and mechanization. Investment was concentrated on four purposes which accounted for 82 per cent of the lending program: (i) farm water supply, (ii) livestock development, (iii) farm mechanization, and (iv) land reclamation. Farmers' response to the program reflects entrepreneurship and willingness to modernize their operations, particularly in producing quality fruit and vegetables.

2.11 Significant improvements have been achieved in ACC's technical competence and administrative organization. The technical staff has benefitted from overseas training and from U.S.AID technical assistance. Loan approval, up to specified limits, has been delegated to branch offices. Accounting and statistics have been greatly strengthened. Mechanization of the accounting system is being undertaken and should further improve the efficiency of loan administration. A substantial recent increase in salary levels is expected to help ACC recruit and retain qualified technicians. However, in-service training is still inadequate, particularly in the techniques of assisting borrowers in the preparation of farm plans and in methods of loan appraisal (para 4.02).

2.12 ACC took important steps to improve its financial position. In 1963, it discontinued its short-term credit operations, leaving this function to the Central Cooperative Union (CCU) and to the cooperatives. In 1964 the rate of interest on medium- and long-term loans to farmers was raised on IDA's request from four to five and a fourth per cent. This rate would be raised to six per cent; it would still be below those of commercial banks which range from seven and a half to nine per cent per

annum for short-term operations [para 3.08(i)]. Measures have been taken to improve loan collections, but the Corporation has not yet applied penalty charges for loans in arrears. The Government refrained from granting moratoria affecting repayment of ACC's loans. As a result of these measures and of government support, ACC's lending operations have been profitable. A net increase of JD 1.3 million has been realized in the loan portfolio from 1963 to 1966.

2.13 ACC's use of funds has not been fully satisfactory in the past. Large cash balances have been deposited in commercial banks where high returns could be obtained, instead of being lent to farmers. These balances have now been drawn down and assurances by ACC were obtained during negotiations that this situation would not recur (para 3.13).

2.14 The CCU provides short-term credit to farmers through cooperatives from its own resources and ACC's advances. During 1965 and the first half of 1966, CCU had to reduce its lendings pending reorganization and collection of arrears.

#### E. ACC's Overall Credit Program

2.15 The Corporation's total lending program at the time of appraisal was JD 8 million for the 1967-1970 period. This was considered too ambitious by IDA on the grounds of ACC's inadequate staffing for loan appraisal and the danger of excessive farmer indebtedness. During appraisal ACC agreed to reduce this lending program to JD 5.4 million (US\$15 million) over the four-year period. The proposed IDA financed Project would be a part of this four-year program as shown below.

	<u>JD Million</u>	<u>US\$ Million Equivalent</u>
<u>Total Lending Program 1967/68</u>	5.40	15.0
<u>Operations Outside Project</u>		
a) Investment for subprojects	3.00	8.4
b) ACC's advances to CCU's revolving fund	0.60	1.6
<u>Lending for Project</u>		
a) Financed by IDA Credit	1.08	3.0
b) Financed from ACC's own resources	0.72	2.0

2.16 From the total program IDA has selected for the proposed Project those subprojects which have the highest priority and require fairly large amounts (para 3.02). The rather longer average terms of investment involved for these subprojects would probably have led to some reluctance on ACC's part to give these investments first call on its resources. Other subprojects,



while forming a legitimate part of ACC's portfolio, were not felt by IDA to have the same priority, or were subject to special factors. Examples of these are: the financing of draft animals, local cattle and sheep; storage and processing facilities which had not reached a stage of preparation required for appraisal by the mission; and poultry, where demand is difficult to predict and any lending program would require constant reassessment, and where amounts are likely to be small. ACC will go ahead with the financing of these items from its own resources, but they will remain outside the scope of the Project with the possible exception of storage and processing facilities if adequate justifications for their inclusion are eventually submitted to IDA. The total investment over a four-year period for subprojects outside of the proposed Project would aggregate to JD 3 million (US\$8.4 million).

2.17 The balance of ACC's lending program outside the Project would take the form of a contribution during the four-year period of about JD 0.6 million (US\$1.7 million) to CCU's revolving fund for the extension of short-term credit. This fund would provide among others the complementary working capital to farmers obtaining development loans from ACC.

### 3. THE PROJECT

#### A. Detailed Features

3.01 The proposed Project would be part of the second phase of ACC's on-farm investment program. The IDA credit of JD 1.08 million (US\$3 million) would supplement ACC's resources for the extension of about JD 1.8 million (US\$5 million) in loans to farmers for priority investment fields in 1967 and 1968. The estimated 3,000 to 4,000 farmers who would receive loans would contribute the remaining JD 0.36 million (US\$1 million) to the financing of the total project cost aggregating JD 2.16 million (US\$6 million) (see paras 3.03 and 3.05).

3.02 Priority investments to be financed would be (i) land reclamation and improvement, (ii) farm water supply, (iii) tree crop and vineyard establishment, (iv) farm machinery, and (v) on-farm development in government irrigation schemes. The investments would thus improve Jordan's limited land and water resources and develop fruit and vegetable production. Most of the demand for loans is expected to occur in the northwestern part of Jordan, in the uplands and the Jordan Valley (see map).

B. Cost Estimates

3.03 Approximate investment and lending targets for the Project are as follows:

	<u>On-Farm Investment Targets</u>			<u>Proposed ACC Lending</u> (JD'000)
	<u>Cost of Subprojects</u> (JD'000)	<u>Estimated Foreign Exchange Component</u> JD'000	<u>Per Cent</u>	
Land reclamation & improvement	300	76	25	240
Tree crop establishment	400	60	15	340
Farm water supply development	340	170	50	280
Farm machinery	520	364	70	420
On-farm development with- in irrigation schemes	280	112	40	240
Unallocated <sup>1/</sup>	<u>320</u>	<u>96</u>	<u>30</u>	<u>280</u>
Total: in JD'000 (in US\$'000)	2,160 (6,000)	878 (2,460)	41	1,800 (5,000)

3.04 Costs have been estimated conservatively on the basis of prices and wages prevailing during the appraisal, with a contingency allowance of about 10 per cent. Except for farm machinery, the farmers' contribution would primarily consist of labor. Because of possible changes in demand and in economic conditions, an amount equivalent to 15 per cent has been left unallocated to permit adjustments and, if necessary, for financing technical services (para 4.02). The estimated foreign exchange component of JD 0.88 million is about 41 per cent of the total project cost or 82 per cent of the proposed IDA credit.

C. Proposed Financing

3.05 The estimated project cost of JD 2.16 million (US\$6 million) would be met from the following sources:

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<sup>1/</sup> Technical services have not been specifically included since it is expected that they would be financed from other sources. Should this financing not be available, the foreign exchange cost of these services would be met from the unallocated portion of the IDA Credit.

	<u>JD'000</u>	<u>US\$ Million</u>	<u>% of Total</u>
Farmers' participation	0.36	1	17
Total lending	<u>1.80</u>	<u>5</u>	<u>83</u>
Total	2.16	6	100
<u>Sources of Lending</u>			
ACC's own resources	0.72	2	33
Proposed IDA credit	<u>1.08</u>	<u>3</u>	<u>50</u>
Total	1.80	5	83

3.06 Farmers would contribute on the average about 17 per cent to the project cost, primarily in the form of hired or family labor. The contribution of settlers within government irrigation projects, whose capital resources are small, could be as low as 10 per cent. A higher contribution would discourage farmers from investing or would force them to borrow from other sources at excessive cost.

3.07 The balance of project costs (83 per cent) would be provided as loans from ACC, of which 60 per cent would be financed from the IDA credit while the remaining 40 per cent would be financed from ACC's own resources.

#### D. Lending Policies and Procedures

3.08 ACC is an agricultural credit institution making medium- and long-term loans to farmers for development purposes. Operations under the Project would be carried out under the general policies and procedures as outlined below and elaborated in Annex 1. The major changes are with respect to interest rates, terms of lending and the basis for loan appraisal.

##### i) Interest Rates

For new loans the Corporation would raise interest rates to individual borrowers from the present annual rates of 5-1/4 per cent to 6 per cent and charge penalty rates of at least one per cent on loans in default. Increase of interest rates would narrow the gap between ACC's current interest charges and those of commercial banks (para 2.12). With respect to the IDA credit, the Government would be the borrower and would make the proceeds of the credit available to ACC for 20 years, including 10 years of grace. ACC would pay Government a rate of 3-1/4 per cent as in the first IDA Credit. This would provide a margin of 2-3/4 per cent which would be adequate to cover administrative expenses and risks. The interest rate would be reviewed from time to time and necessary changes would be agreed upon between the Corporation and IDA. The Government would bear the exchange risk for repayment to IDA.

ii) Terms of Lending

Terms of lending to farmers within the ranges indicated below would be determined on the basis of the projected financial returns in each case. Terms and grace periods for loans for land reclamation, water supply and tree crop establishment would be longer, while terms for loans for light tractors would be shorter than under the first Credit. Terms and grace periods would be shorter where the land is to be used primarily for vegetable production, intermediate for grape and tree fruit and longest for olive grove development.

	Terms Including <u>Grace Period</u> .....(in years).....	Grace <u>Period</u> .....
Land reclamation & improvement )		
Tree crop establishment )	7-12	2-5
Farm water supply development )		
On-farm development	up to 10	1-3
Heavy tractors (50 hp & above) & combines	up to 7	-
Light tractors (below 50 hp)	up to 5	-

iii) Basis for Loan Appraisal

Under the Corporation's lending rules and procedures, separate appraisals are often made for loans to the same farmer for land reclamation, water supply development and tree crop establishment. Assurances have been provided by ACC that all of these would be combined into one farm plan for each farm and would be appraised together. This method of appraisal would permit the formulation of more realistic repayment plan for the farmer than the present system.

For pump irrigation schemes involving loans exceeding JD 5,000 ACC would require a satisfactory feasibility report and pumping plant specifications would be prepared in a manner acceptable to the Natural Water Resources Authority. Costs of technical studies would be included in the investment costs and could be financed under the Project.

3.09 As under the first IDA Credit, loan decisions based on the technicians' appraisal reports would be made by committees at the branch, district, or head office level for loans up to JD 2,500 and by the Board of Directors for loans above that amount. Loans to individual farmers or for single schemes financed under the Project and exceeding in the aggregate JD 20,000 would require IDA approval. The committees would approve or disapprove the application on the basis of creditworthiness of the

prospective borrower, but could not change the amount of loan recommended by the technical staff, since a reduction would not permit the farmer to complete the investments to be carried out under the farm plan.

3.10 ACC would give emphasis to the economic and financial returns to be expected from each farm plan, but would continue to have regard for loan security. Loan security would be a first mortgage, with exceptions authorized in ACC's rules and procedures. With respect to tractors or other heavy equipment, titles would be registered and a commitment would be obtained from the farmer not to sell, transfer or assign the equipment until his loan is repaid.

3.11 Loans to farmers would be disbursed in tranches upon documentary evidence of expenditure incurred or on the basis of inspection by ACC of the progress made in carrying out the farm plan. In the case of agricultural machinery, ACC would make payments directly to dealers.

3.12 ACC would further strengthen its staff of loan collectors and would pursue a rigorous policy of collections. It would contact borrowers immediately when loans become overdue, enforce a penalty interest rate on defaulting borrowers and foreclose when necessary to recover loans in arrears. The Government would support ACC in this policy, especially by the enforcement of collections through administrative channels as provided for under ACC's constituting law and would continue to refrain from instituting moratoria affecting the repayment of ACC's loans (para 2.12). During negotiations assurances were obtained concerning these points.

3.13 Due to a pressing demand, ACC is expected to have its resources fully utilized for loans and should, without compromising its standards of loan appraisal, keep only small cash reserves for contingencies which should not exceed about JD 50,000 over and above the amounts currently required for disbursements on loans approved, such amount being projected not to exceed about JD 300,000 at any time. During negotiations, assurances were obtained that ACC would invest the balance of its resources in lending operations (para 2.13).

3.14 Assurances were also obtained that ACC would arrange for regular auditing of the accounts by accountants acceptable to IDA.

#### E. Disbursement

3.15 Disbursements from IDA would be made on the basis of 60 per cent of loans paid out by ACC for farm development purposes (para 3.07). Documentation would consist of a statement of ACC's expenditures for loans, supported whenever possible by the local supplier's invoice. The IDA participation cannot be related directly to the foreign exchange component of the Project. Imported goods, if any, will be purchased locally by the farmers, and the origin of such goods will not be identifiable except for agricultural machinery and for the major equipment used in water supply development. Any disbursements for technical assistance approved by IDA would be on the basis of their foreign exchange cost (para 4.02).

F. Operating Results

3.16 The projected financial implications of the Project in conjunction with ACC's overall credit operations (see Annex 1, Table 5) are summarized as follows:

	<u>JD'000</u>
<u>Requirements</u>	
Lending under IDA credit	1,800
Lending under ACC's own resources to farmers for development	3,000
CCU for crop loans	600
Repayment of U.S.AID loan	208
Repayment of Government advance	15
Increase in fixed assets	80
Increase in cash in hand from JD 134 to JD 237	<u>103</u>
	5,806
<u>Resources</u>	
Increase in paid-in capital	140
Accumulated retained earnings	429
Loan collections	4,157
IDA proposed credit	<u>1,080</u>
	5,806

4. ORGANIZATION AND MANAGEMENT

A. Project Administration

4.01 ACC has the responsibility for administering Jordan's agricultural credit program within the Seven-Year Development Plan, which is under the control of the Jordan Development Board. It would administer the proposed IDA credit within its overall credit program. Assurances were obtained that IDA would be consulted about any changes in the laws and regulations governing ACC and on future appointments to the offices of the Chairman and the Deputy General Manager. The present office holders are highly regarded and manage the Corporation on a sound basis.

4.02 Details on ACC's present organization and financial conditions are given in Annex 1. ACC is benefiting from U.S.AID assistance given in accounting, statistics and credit procedures. There is clear need for continuation of such assistance and for additional assistance in the field of farm planning and production economics. During negotiations, assurances

were obtained that ACC would make all efforts necessary to secure, within six months after signing, the services of a farm economics expert with qualifications satisfactory to IDA for a period of one and a half to two years. He would train and supervise ACC's personnel concerned with the preparation of farm development plans and loan appraisals. From its staff ACC would assign on a full-time basis two persons trained in farm economics (one each in the development areas east and west of the Jordan River), who would assist the farm economics expert in training branch technicians and loan officers in the preparation of farm plans and in methods of loan appraisal. In the event that ACC does not succeed in securing a qualified farm economics expert through U.S.AID or other technical assistance programs, ACC would finance the respective foreign exchange cost from the unallocated portion of the IDA credit (para 3.03). (This would constitute less than 10 per cent of the unallocated portion.)

4.03 In addition to further training of its own technical staff, ACC would increasingly work in liaison with the Natural Resources Authority and the Ministry of Agriculture, particularly in its extension and veterinary services and marketing organization. The Agricultural Engineering and Irrigation Section of the Ministry of Agriculture would continue to be responsible for on-farm development within the East Ghor and other government irrigation schemes, and would encourage increased use of custom services by private contractors to expedite the operations.

#### B. Procurement

4.04 Goods required for farm development would be procured locally through normal commercial channels. Competition for imported and local goods is assured, and there are no restrictions on imports of goods under the Project (except of those produced in Israel). Well drilling and pump installations for private irrigation systems would be performed by local firms which are reasonably competent in this field. With respect to service and repair of farm machinery, facilities exist in major centers. Additional repair shops are being established in rural locations. The scale of contracts and services to be procured under the Project would not attract foreign contractors.

### 5. BENEFITS AND JUSTIFICATION

5.01 Benefits from the Project would materialize to participating farmers, to the ACC and to Jordan's economy. Quick benefits would accrue from increased production of vegetables; benefits from new vineyards would materialize within three to five years; from stone fruit, citrus and olive groves after a period of five to seven years.

5.02 Through investment in land and water, tree crops and vineyard development, participating farmers would modernize and increase fruit and vegetable production. The financial rate of return on the full investment

cost would range from 17 per cent in olive grove development to 60 per cent in the development of blue-grape vineyards. The expected financial returns which would commence within the time periods indicated in 5.01 above would enable the borrowers to repay their loans from ACC within five to twelve years.

5.03 The proposed Project would enable ACC to continue the lending program initiated under the first IDA Credit. ACC would benefit through upgrading of its technical staff and through further improvements in its institutional strength. The further improvements in loan appraisal, administration and collection will lead to increased recoveries and to a consequent strengthening of ACC's financial position.

5.04 Jordan's comparative advantage is greater in the intensive production of fruits and vegetables where yield, quality and financial returns are higher, than in the production of cereals or other staples where Jordan's average yields are below those of neighboring countries. The output of fruits and vegetables, which accounts for over half of Jordan's agricultural production, will further increase through the investment contemplated under this credit. After about 12 years the proposed investment would generate incremental annual outputs of fruits and vegetables of approximately 95,000 tons, with an estimated value at farm prices of JD 2.8 million. About one fourth of this could be exported, which would add JD 680,000 or US\$2 million to Jordan's export revenues. Assuming that the resources would be allocated to subprojects as estimated in Annex 2, tables 1 and 2, the return to the economy would be over 30 per cent.

## 6. CONCLUSIONS AND RECOMMENDATIONS

6.01 The Project is a part of the second stage of an agricultural credit program directed principally at the expansion and improvement of Jordan's productive land and water supplies, with concurrent development for fruit and vegetable production. The demand for investment capital in such development is great. Participating farmers would realize satisfactory results.

6.02 The Project is sound and suitable for the proposed US\$3 million credit. The Government would be the borrower and would make the proceeds of the credit available to ACC which in turn would make medium- and long-term loans to farmers. ACC is capable of administering the credit.

6.03 During negotiations, assurances satisfactory to IDA were obtained that:

a) the Government would:

i) refrain from instituting moratoria that would delay repayment of loans made by ACC and would support ACC in a strict policy on loan collections (para 3.12);



- ii) consult IDA about future changes in the laws governing the ACC (para 4.01);
  - iii) consult IDA on future appointments of the General Manager (Chairman) and the Deputy Manager of ACC (para 4.01);
- b) the Agricultural Credit Corporation would:
- i) contribute from its own resources to the CCU's revolving fund an amount adequate for the extension of the necessary short-term credit required by farmers receiving development loans who cannot obtain such credit from other sources on reasonable terms (para 2.17);
  - ii) carry out the purposes of the credit through making available for lending to farmers the necessary funds averaging 83 per cent of the cost of approved farm development plans (para 3.07);
  - iii) raise interest rates to borrowers from the present annual rate of five and a fourth per cent to six per cent and charge penalty rates of at least one per cent on loans in default /para 3.08(i)/, increase its staff of collectors and foreclose when necessary (para 3.12);
  - iv) appraise loan applications and determine repayment schedules on the basis of projected financial returns, by means of a farm development plan /para 3.08(iii)/;
  - v) require a feasibility report and specifications acceptable to the Natural Resources Authority for pump irrigation schemes involving loans in excess of JD 5,000 /para 3.08(iii)/;
  - vi) obtain prior IDA approval for loans to any individual farmer or for any single scheme exceeding JD 20,000 in the aggregate (para 3.09);
  - vii) have its financial resources fully utilized for loans and would, without compromising its standards of loan appraisal, keep only small cash reserves for contingencies which should not exceed about JD 50,000 over and above the amounts currently required for disbursements on loans approved, such amounts being presently estimated to be about JD 300,000 (para 3.13);
  - viii) arrange for an annual audit of the accounts by accountants acceptable to IDA (para 3.14);

- ix) make all efforts necessary to secure, within six months after signing, the services of a qualified farm production economics expert satisfactory to IDA who, with the assistance of two farm economists from ACC's staff, would train and supervise ACC's field technicians in the preparation of farm plans and in methods of loan appraisal (para 4.02).

April 14, 1967

AGRICULTURAL CREDIT PROJECT

THE AGRICULTURAL CREDIT CORPORATION

1. The Agricultural Credit Corporation (ACC) was established in 1960 with an authorized capital of JD 7 million (US\$19.6 million). The assets of its predecessor credit institutions, mostly balances due on loans made by these institutions, are the major contribution to the paid-in capital which amounted to about JD4.3 million (US\$12 million) at September 30, 1966. The objective of the Corporation is to extend loans for productive agricultural purposes.

Organization

2. The Corporation is controlled by a Board of Governors, consisting of a Chairman, four Government members representing respectively the Ministry of Finance, the Ministry of Agriculture, the Department of Lands and Surveys and the National Development Board; and four non-Government members. The Chairman is appointed by the Council of Ministers subject to the King's approval. He recommends to the Council of Ministers the appointment of the non-Government members. At present these are leading farmers from the major agricultural regions of Jordan.

3. The Board has full authority to administer the Corporation and determine its policies. Coordination with Government policies is assured through representation on the Board from the Ministries of Finance and Agriculture and particularly the National Development Board. The Corporation has its own salary scales and terms of service; the staff does not have civil service status; salaries are slightly higher than in the civil service.

4. The Corporation's head office is in Amman in new premises, built two years ago. It is organized into the following sections: Administrative, Accounting, Credit, Execution and Supervision, Statistics and Research. There are twelve branches and two sub-branches operating in the main centers of the country.

5. The Chairman of the Board is the Chief Executive. He is assisted by a Deputy General Manager who like him is appointed by the Council of Ministers with the approval of the King. The present officeholders are highly regarded and run the Corporation on a sound basis.

6. The Corporation's staff numbers about 209, (about 100 in the head office and 109 in the branches) as against an establishment of 235. The staff is still inadequate both in number and professional experience to administer the existing loan portfolio and to carry out a greatly expanded program of lending operations. ACC has not been able to recruit sufficient qualified personnel or to actively pursue in-service training. A number of staff members are being trained abroad, but this type of training takes a long time and risks of losing trainees are high. The recent increase in salary levels should, however, enable ACC to recruit and retain better qualified staff.

7. The administrative organization, and especially accounting and statistics, have been considerably improved since the first IDA Credit was made. The mechanization of the accounting system has been undertaken under the guidance of a US. AID expert. Two other U.S. AID experts are assisting ACC with its statistics and lending procedures, respectively. Auditing is carried out by the Government's Audit Department; one employee is permanently assigned to the Corporation for this purpose.

#### Loan Characteristics and Procedures

8. Maximum terms of medium and long-term loans as fixed by regulations are 10 and 20 years, respectively. Terms of loans made actually range from about five years for purchases of tractors, farm machinery and livestock to no more than 15 years for irrigation projects. Periods of grace up to four years are given for investments where returns will not be realized for several years as in tree plantations. The Corporation discontinued short-term credit operations in 1963, leaving them to the Central Co-operatives Union and cooperatives.

9. A real estate mortgage is required as security for a loan. Guarantors are accepted when the borrower is not a landowner or does not have clear title to his land, but in such cases, loans must not exceed JD 500. Loans cannot exceed 60 per cent of the Corporation's valuation of the land offered as security. Because of insufficient resources ACC had in the past established various ceilings according to loan types. These were lifted after ACC received the first IDA Credit.

10. In 1964 the rate of interest on loans for farmers was raised from  $\frac{1}{4}$  to  $5\frac{1}{4}$  per cent per annum at the suggestion of IDA. This rate is still below the rates of commercial banks which range from  $7\frac{1}{2}$  per cent to the legal maximum of 9 per cent per annum for short-term operations. The Corporation has not yet applied a penalty rate or other charges for loans in arrears.

11. Loan applications are received by the branches or head office directly from farmers. The practice of lending on the basis of farm plans has been developed but still is not general. The appraisal of the collateral offered as security and cost estimates of the Project are still of primary concern to ACC rather than the appraisal of returns. Decisions are made by technical loan committees, including farmers' representatives appointed by the Board. Branch Committees may decide on loans up to JD 500 (US\$1,400); the Central Loan Committee decides on loans up to JD 5,000 (US\$14,000); loans over JD 2,500 are referred to the Board.

12. Loan disbursements are made by tranches after checks by inspectors, or on documentary evidence of progress of investments or purchase of goods. Payments for farm machinery purchases are usually made by ACC directly to the dealers.

13. ACC now makes loans to the CCU at a rate of 2 per cent per annum against 1 per cent per annum before the IDA Credit was granted. CCU in

turn lends to member cooperatives at 4 per cent and these relend to their members at 7 and 8 per cent. After a long experience of poor repayment by farmers, CCU has reduced its operations considerably over the last three years, and has been able to redeem a portion of its advances received from ACC. CCU has been reorganized and now has better control over its operations. ACC is also represented on its Board.

### Lending Operations

14. Table 1 shows the Corporation's lending operations by years from its inception to September 30, 1966 and the amount of the loan portfolio at the end of each period. The overall average of lending per year since the lending program under the IDA Credit started has been about 2,100 loans for a total of about JD 1.1 million per annum (average JD 520 per loan (US\$1,460)). Loan collections have averaged about JD 670,000 per year. The net increase of the portfolio during the period has been about JD1.3 million.

15. The record of investments over recent years supported by ACC loans expressed in physical terms is impressive. Some examples are given below:

	<u>1963/64</u> No.	<u>1964/65</u> No.	<u>1965/66</u> No.
<u>Irrigation</u>			
Artesian Wells	6	7	5
Cisterns	726	214	68
Reservoirs	59	42	67
Engines for pumping	49	48	60
Pumps	45	40	49
Pipes (meters)	(23,534)	(26,665)	(47,578)
Cement conduits (meters)	(45,335)	(17,425)	(16,596)
Soil conduits (meters)	( 2,520)	( 1,580)	(13,325)
Powerhouses	27	34	41
<u>Farm Machinery</u>			
Tractors	11	60	77
Combine harvesters	1	0	8
Tractor-drawn equipment	33	145	203
Vines & tree plantings	203,000	365,000	274,000
<u>Subsoiling</u> (dunums)	(3,856)	(1,394)	(2,574)
<u>Fences</u> (meters)	(32,000)	(42,000)	(78,000)
<u>Livestock</u>			
Milking cows	169	220	225
Sheep	17,059	21,136	39,945
Baby chicks	41,000	63,000	44,000

16. Loans made under the first IDA Credit are distributed as follows according to purpose:

	----- Loans Made -----	
	<u>Number</u>	<u>Amount</u>
Land reclamation & improvement	826	199,000
Establishment of tree crop plantations	681	68,000
Development & improvement of farm		
water supplies	775	473,000
Farm machinery	320	200,000
Livestock development	829	450,000
Farm buildings & storage facilities	209	114,000
On-farm development within East		
Ghor Irrigation Project	<u>343</u>	<u>103,000</u>
Total	<u>3,983</u>	<u>1,607,000</u>

Total related investments made by farmers are estimated at about JD 2 million.

17. The average rate of loan collections over the last three-year period has been reasonably good for loans made by ACC since inception and excellent for loans under the IDA Credit, although the experience regarding loans under the IDA Credit is short and therefore not conclusive. Repayments on loans inherited from other institutions have been poor, but better than expected. Collections were favored in 1963/64 and 1964/65 by good crops; they dropped considerably in 1966 because of an unusually bad crop season. The average collection rate of about 50/60 per cent per annum can be maintained only if ACC pursues a rigorous policy on collection. This low rate is reasonable in Jordan due to the recurrence of bad crop years, the still significant portfolio of old loans and ACC's policy of not granting extension of maturities. The former Government policy of moratoria on loan payments has tended to slow down repayment. Also the uncertain political situation has added to this problem.

#### Loan Portfolio

18. Details of the loan portfolio as at December 31, 1966 are given in Table 2. As at December 31, 1966, ACC's loan portfolio included approximately 56,000 loans for an amount of JD 6 million (average of about JD 100 per loan). About JD 326,000 are doubtful loans taken over from predecessor institutions. The related collections accrue to the paid-in capital. The great number of loans makes the portfolio difficult to handle. Over the last three years, ACC has been able to reduce the number of loans by about 10,000 through collections and some consolidations.

#### Financial Situation

19. Condensed balance sheets at March 31, 1963-1966 and December 31, 1966 and profit and loss accounts of the Corporation are given in Tables 3

and 4. Net profits made by ACC over the last five years have been the following:

1961/62.....	96,246
1962/63.....	81,585
1963/64.....	38,995
1964/65.....	120,691
1965/66.....	84,430
1966 (nine months)...	28,119

Only interest payments received are taken into account, and heavy fluctuations in net profits reflect changes in collection rates related to the success or failure of crops. Over the period profits have averaged about 2 per cent of the average capital employed; gross income has been about 4.2 per cent and administrative expenses 2.2 per cent. With the strengthening and better payment of its staff, ACC's administrative expenses have increased. They are still, however, extremely modest; and their rate of increase has been less than the increase in income. ACC's profitability would be better if collection of interest were improved.

20. ACC's overall financial situation has improved markedly since the lending program under the IDA Credit was started. Major improvements include: a significant increase of the paid-in capital and surplus account which was credited with all the profit, increase in loanable resources by the amount of the IDA Credit, reduction by about 50 per cent of doubtful loans and significant reduction of loans inherited from predecessor institutions. From September 30, 1963 which is the beginning of the first IDA Project, the proportion of old loans has dropped from 47 per cent of the loan portfolio to about 24 per cent at December 31, 1966. While ACC's financial situation is satisfactory at present, the possibility of a deterioration at a later stage is always present because of the impact which Jordan's unstable political situation appears to have on repayments of loans.

JORDANAGRICULTURAL CREDIT CORPORATIONDetail of Lending Operations Since Inception  
(in JD)

Periods	-New Loans Made--		---Repayments---		---Loan Portfolio--	
	No.	Amount	No.	Amount	Date	Amount
10/60-3/31/61	n.a.	457,681	--	80,500	4/1/61	3,747,159
1961-1962	2,619	485,582	8,433	427,135	3/31/62	3,988,960
1962-1963	3,433	1,023,783	8,219	633,665	3/31/63	4,380,449
4/1/63- 10/1/63 <sup>1</sup>	n.a.	482,550	n.a.	n.a.	10/1/63	4,553,508
10/1/63- 3/31/64	<u>n.a.</u>	<u>420,257</u>	<u>n.a.</u>	<u>n.a.</u>		
Subtotal 1963/64	2,938	902,807	3,103	473,896	3/31/64	4,777,494
1964-1965	1,764	833,055	3,821	707,644	3/31/65	4,797,184
1965-1966	2,042	1,193,716	4,315	691,666	3/31/66	5,253,406
4/1/66- 9/30/66 <sup>1</sup>	1,430	908,490	1,449	356,820	9/30/66	5,810,014 <sup>2</sup>
9/30/66- 12/31/66	813	335,215	1,164	158,898 <sup>3</sup>	12/31/66	5,983,012

<sup>1</sup>/ Expenditures made between October 1, 1963 and June 30, 1966 were eligible for reimbursement under the first IDA project.

<sup>2</sup>/ Net increase of portfolio during the first IDA project is: JD 1,256,506.

<sup>3</sup>/ Including renewals: JD 48,419.



JORDAN  
AGRICULTURAL CREDIT CORPORATION

Detail of Loan Portfolio  
(in JD)

	9/30/63 <sup>1/</sup> Amount	-----12/31/66----- Loans	Amount
A) <u>ACC's New Loans</u>			
Short term	124,852	1,086	48,861
Medium term	1,186,562	7,041	2,389,959
Long term	32,934	13	26,734
To East Ghor farmers	22,191	125	17,441
To East Ghor Canal Authority	29,048	1	14,290
Under IDA Credit	--	<u>3,851</u>	<u>1,400,889</u>
	<u>1,395,587</u>	12,117	3,898,174
B) Loans from funds provided by U.S.AID	360,291	2,441	264,398
C) Loans to Central Coop. Union	625,219	1	464,012
D) Loans taken over from various credit institutions	1,711,482	26,373	1,021,715
E) East Ghor Rural Dev. loans	--	21	8,500
F) Doubtful loans transferred to ACC	<u>460,930</u>	<u>15,077</u>	<u>326,212</u>
	4,553,509	56,030	5,983,011
Housing scheme for staff	--	<u>32</u>	<u>65,529</u>
	<u>4,553,509</u>	56,062	6,048,540

<sup>1/</sup> Beginning of first IDA Project.

JORDAN

AGRICULTURAL CREDIT CORPORATION

Comparative Balance Sheets  
(in JD)

<u>A S S E T S</u>	<u>3/31/63</u>	<u>3/31/64</u>	<u>3/31/65</u>	<u>3/31/66</u>	<u>12/31/66</u>
Cash in hand	323,567	326,678	708,545	741,298	265,880
Loan portfolio	4,380,449	4,774,494	4,797,184	5,253,406	6,048,541
Village development loans	298,647	279,362	252,989	--	--
Various assets	3,865	10,644	73,963	95,665	4,989
Fixed assets (net)	<u>17,667</u>	<u>43,816</u>	<u>21,186</u>	<u>84,445</u>	<u>102,362</u>
Total Assets	5,024,195	5,434,994	5,853,867	6,174,814	6,421,772
-----					
<u>L I A B I L I T I E S</u>					
Capital	4,008,996	4,114,185	4,191,289	4,288,236	4,333,905
Surplus	99,596	138,551	259,188	343,618	368,427
IDA Credit	--	237,537	582,763	977,505	1,071,343
U.S.AID loan	--	--	--	--	208,000
Inherited doubtful loans (contra account) <sup>1/</sup>	480,015	454,556	395,557	342,412	326,212
Village development loans (contra account) <sup>1/</sup>	298,647	279,889	253,321	--	--
Borrowers' current accounts	--	206,161	148,767	154,711	32,653
Sundry liabilities	<u>136,941</u>	<u>4,115</u>	<u>22,982</u>	<u>68,332</u>	<u>81,232</u> <sup>2/</sup>
Total Liabilities	5,024,195	5,434,994	5,853,867	6,174,814	6,421,872

<sup>1/</sup> Inherited doubtful loans and village development loans are not considered as part of ACC's capital.

<sup>2/</sup> Including Treasury advance of JD 20,000 against frozen deposit with Intrabank.

JORDAN  
AGRICULTURAL CREDIT CORPORATION  
Profit and Loss Accounts  
(in JD)

	1962/63	1963/64	1964/65	1965/66	1966 <sup>1/</sup>
<u>I N C O M E</u>					
Interest on individual loans received	121,398	105,842	209,763	171,354	109,916
Interest on coop loans	5,839	6,399	6,475	6,916	5,384
Interest on deposits in banks	21,769	10,051	10,465	34,024	27,068
Other income	<u>1,023</u>	<u>1,586</u>	<u>2,076</u>	<u>1,970</u>	<u>923</u>
Total Income	150,029	123,878	228,779	214,264	143,291
<u>E X P E N D I T U R E S</u>					
Interest on IDA Credit	--	--	8,684	23,346	26,116
Administrative expenses	66,448	83,487	96,090	101,387	86,632
Others	<u>1,996</u>	<u>1,436</u>	<u>3,314</u>	<u>5,101</u>	<u>2,424</u>
Total Expenditures	68,444	84,923	108,088	129,834	115,172
Profits	<u>81,585</u>	<u>38,955</u>	<u>120,691</u>	<u>84,430</u>	<u>28,119</u>
Total Expenditures & Profits	150,029	123,878	228,779	214,264	143,291
<u>Detail of Administrative Expenses</u>					
Salaries	54,169	64,571	75,280	78,751	68,920
Board of Directors & Loan Committees	1,442	1,723	4,445	4,648	3,794
Travel & transportation	705	4,004	4,402	4,531	5,258
Utilities	1,499	1,732	2,162	2,189	1,689
Books; stationery	1,329	1,544	1,593	1,055	1,105
Rents	3,587	4,194	2,159	2,158	1,947
Miscellaneous	<u>4,927</u>	<u>5,719</u>	<u>6,049</u>	<u>8,055</u>	<u>3,919</u>
Total Administrative Expenses	67,658	83,487	96,090	101,387	86,632

<sup>1/</sup> Nine months.

JORDAN  
AGRICULTURAL CREDIT CORPORATION

Cash flow  
(in JD'000)

	<u>A C T U A L</u>		<u>F O R E C A S T</u>				
	1964/65	1965/66	1966/67 <sup>1/</sup>	1967/68	1968/69	-----Project Period----- 1969/70      1970/71	
Cash in hand beginning of period	327	709	741	134	266	306	274
<u>Cash Inflow</u>							
Paid-in capital increases	77	97	56	35	35	35	35
Retained earnings	121	84	25	101	106	109	113
Loan collections	709	690	653	1,050	1,068	1,034	1,005
IDA Credit	345	395	94	270	270	270	270
Miscellaneous	<u>19</u>	<u>46</u>	<u>228</u> <sup>2/</sup>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
	1,598	2,021	1,797	1,590	1,745	1,754	1,697
-----							
<u>Cash Outflow</u>							
<u>Lendings</u>	833	1,174	1,140	1,200	1,350	1,400	1,450
Under IDA Credit	517	593	160	450	450	450	450
Under ACC's own funds							
-for development	206	468	1,141	640	740	790	790
-for short term through CCU	110	96	89	100	150	150	200
-for other purposes	--	17	50	10	10	10	10
Repayment U.S.AID loan & Treasury advance	--	--	5	84	69	70	--
Miscellaneous	56	106	218 <sup>3/</sup>	40	20	10	10
Cash in hand end of period	<u>709</u>	<u>741</u>	<u>134</u>	<u>266</u>	<u>306</u>	<u>274</u>	<u>237</u>
	1,598	2,021	1,797	1,590	1,745	1,754	1,697

1/ Thirteen months.

2/ U.S.AID advance to ACC: JD 208,000 and Treasury advance: JD 20,000.

3/ Miscellaneous fixed assets and advances to branches.

JORDAN - AGRICULTURAL CREDIT

DETAILS OF THE LENDING PROGRAM

Basis for Loan Appraisal

1. The first three investment categories, land reclamation and improvement, development and improvement of farm water supplies and establishment of tree crop plantations do not constitute separate investment purposes. They are in fact complementary and dependent upon each other. In most areas, for example, land reclamation precedes stone fruit, citrus, olive grove and vineyard development. In others, the farmer will not proceed with land reclamation and tree crop planting unless he has succeeded in developing an assured water supply. Under the proposed Credit, all these development costs would, whenever possible, be incorporated in one farm plan and would be projected in conjunction with the financial returns by means of a cash flow statement.

2. In like manner, on-farm development in Government irrigation schemes would be projected in conjunction with the financial returns from citrus and/or vegetable production. On the basis of a farm plan, minor investments in draft animals, equipment and farm buildings would be included as components of such loans. The farm plan would also show the extent of financial assistance which the borrower is receiving from other sources such as the land reclamation scheme financed under the World Food Program or the USAID grant for land levelling. The entire investment would be appraised in terms of the projected financial returns.

3. Farm machinery would remain a separate investment category. Loan appraisal would rest on adequate utilization on the borrower's own farm and on the need for custom services which he would render.

ACC's Operations outside the IDA Credit

4. Two investment categories of the first Credit, livestock production and farm building and storage facilities, would not be included under the proposed second IDA Credit. Loans for livestock, mainly for dairy farms under the first Credit were discontinued because sufficient development has already taken place considering present feed supply and milk marketing conditions. Financing of poultry, particularly for hatcheries and egg production, will be required, but not on a large scale. Preparation for storage and processing facilities had not yet reached the stage considered adequate by the appraisal mission. The mission considers these investments essential for Jordan's economy, but ranks them second in priority. They may eventually be considered for financing under the credit if adequate justifications are provided.

Land Reclamation and Improvement -- JD 300,000

5. Land clearing as practiced in Jordan involves high cost per unit area and would hardly be economical in many countries. It is conditioned

by the extreme shortage of arable land, and is made possible particularly in areas where rainfall or irrigation permits production of high value crops.

6. The physical process, mainly in West Bank locations (west of the Jordan River), may involve blasting and piling of rocks in stone walls, terracing and subsoiling. The work is either done by hand labor, particularly in areas where labor costs are not excessive or where women perform part of the task at daily wages not exceeding JD .250, or with mechanical drilling, blasting and bulldozing. Land development has averaged approximately JD 15 per dunum, but has been substantially higher in some cases.

7. Concerned about the high cost of land reclamation and terracing, particularly in West Bank areas near Hebron, the mission obtained detailed input-output data and found that farmers were using advanced horticultural and marketing techniques. Yields and financial returns from vegetables, stone fruit and grapes enable farmers to repay development loans within a period of about 10 years (see Annex 3, Tables 1-6). Since the first IDA Credit became effective, the area reclaimed with ACC financing has ranged from an annual rate of about 1,400 to 4,000 dunums. The four-year investment target under the Project aims at the reclamation of 16,000 to 20,000 dunums in total at an average cost of JD 15 to JD 20 per dunum.

8. To give further encouragement to this program, the Government has appointed a committee consisting of the Undersecretary of Agriculture, the Director of Extension and the Chairman of ACC which organizes and judges contests and awards prizes for land reclamation.

#### Development of Farm Water Resources -- JD 340,000

9. Eighty per cent of Jordan's land area receives less than 220 mm of annual rainfall. Farm water resource development has high priority. Loans for this purpose have comprised nearly 20 per cent of ACC's loan volume since 1960. Investment in major irrigation works has been financed from other sources.

10. Specifically, ACC has been financing small dams and reservoirs, wells with pumps, pipes, engines and power house, and concrete lining of water channels. ACC loans for these purposes were JD 128,000 for the year ending September 1966 and even higher in the two preceding years. Before farmers are eligible for ACC financing of pump irrigation systems, they must assume the risk of finding water. They receive no credit until they have found good and sufficient water.

11. The Credit program has been most effective in West Bank areas, in the Ghor Nimrin on the East Bank and in the desert area near Wadi Dhuleil. When water is struck, land reclamation, as described above, starts simultaneously with the construction of the water supply system. In the same year vegetables, or fruit trees intercropped with vegetables, are planted. Development cost per dunum is high but high returns warrant loan repayment within 10 to 12 years. Entrepreneurs installing larger pump units sell water to neighboring farmers. In other cases, several farmers pool their resources and share the investment cost of the pump scheme. The investors form a group which sells water to its members and also to outsiders.

12. Remarkable as the accomplishments of enterprising farmers, with the assistance of ACC loans, may be, there are at least two serious constraints. One is the limitation of usable groundwater resources. In certain West Bank areas, there has been some evidence of overpumping. This will remain a problem until the groundwater will eventually be recharged with water from the reservoirs built on the tributaries of the Jordan River. Aware of the danger of overpumping, the Government has subjected pump schemes to license and inspection by the Natural Resources Authority, which agency is responsible for all water development projects.

13. The other constraint lies in the lack of experience in designing and operating major pump schemes. Jordan has capable and experienced engineers but in the opinion of the mission, ACC has failed to utilize them for these works. Farmers have often used crude designs even for costly pump schemes. The mission recommends that for pump schemes costing more than JD 3,000 ACC should require a satisfactory feasibility study before granting the appropriate loan. With this provision the lack of engineering knowledge should no longer be a constraint.

14. Taking into account ground water limitations as well as past achievements, the mission's conservative forecast of lending would facilitate water supply development for approximately 9,000 dunum, at an average cost of JD 36 per dunum. ACC is capable of executing a program of this size.

#### Tree Crop Development -- JD 400,000

15. There is a great potential for a variety of stone fruit and vineyards, particularly in locations west of the Jordan River where rainfall is adequate without irrigation. In these areas, orchards and vineyards are generally developed as a corollary to land reclamation.

16. Citrus development in most locations requires prior land and water development. Diversification through the establishment of blocks with different orange varieties, "monthly" and "annual" lemons, grapefruit, and tangarines help farmers to minimize the effect of seasonal price and income fluctuations. Intercropping with vegetables and with grapes provides early returns from orchards and olive groves which require a long gestation period. The range of practices and combinations is so great that the examples (Annex 3, Table 1-6) may not be representative of a large number of existing farms.

17. Farmers have ample choice and adequate supplies of planting materials from private and Government nurseries. They apply modern horticultural and marketing techniques. Some fruit growers' cooperatives compete with private marketing firms in providing essential marketing services. The produce market in Amman has been re-located and reorganized. Government and UN experts carry out experimental work to improve marketing efficiency and to develop domestic and export markets.

18. Olive grove development is carried out in many locations. Annual returns from olives tend to be lower and less reliable than returns from other tree crops. The cash flow statement (Annex 3, Table 6) brings out the danger of excessive cost for land development which would not be compensated by commensurate returns from olives. ACC should not approve loans to olive growers whose land reclamation cost exceeds about JD 15 per dunum. Returns from olives have been conservatively estimated at 15 Kg/tree, they could be increased substantially by use of high yielding plant material and improved management.

On-Farm Development -- JD 280,000

19. On-farm development involves the re-design of farm lay-out, construction of farm head ditches, stone removal and land levelling. At the farmer's request these services are being performed, with ACC financing, by the Agricultural and Irrigation Engineering Services Division of the Ministry of Agriculture. The Division has experienced technicians, levelling equipment and does good work. The rate of development could be increased if more private contractors were encouraged to execute the operations under guidance and supervision of the Division.

20. The need for on-farm development exists in one major and in three minor irrigation schemes. The National Water Resources Authority is responsible for the construction of the water shortage and distribution system and for operation and maintenance.

21. The major scheme is the East Ghor Irrigation Project, the first stage of a phased program for development in the Jordan Valley. For the cropping season 1967, water will be supplied for irrigating 117,000 dunum on some 3400 farm units. Most units will have 30 or 50 dunum of irrigated land. Farmers who owned larger areas prior to construction of the irrigation scheme, are permitted to operate larger farms up to 200 dunum.

22. Farmers receive technical services from Government research and extension centers located in the Project area. USAID has financed the design and construction phase for on-farm development and provides backstopping for the essential Government services. The Project area has some of Jordan's most fertile soils. Through land reclamation they become highly productive for growing vegetables and bananas. It is served by a network of feeder roads and by a major road to Amman.

23. Design and construction of three minor irrigation schemes is being financed by the UK Government. Construction of two minor schemes with earth dams and main canals on Wadi Shu'aib and Wadi Kafrein began in September 1966 and is to be completed within two years. The reservoirs will have a total storage capacity of 11.7 mcm. They will provide water for 23000 dunum of newly irrigated land and supplementary water to areas now receiving inadequate water supplies from other sources.



24. Wadi Dhuleil, the third minor scheme, likewise receiving financial and technical assistance from the UK Government, involves the development of ground water in a desert area about 40 km northeast of Amman. The scheme is programmed in three stages, each of which is to irrigate 10,000 dunum. Private growers have pioneered in this development and have established technical feasibility and profitable vegetable production on irrigated desert soils in large scale operations. The Government aims to establish the feasibility and the economics of operating small farm units. Construction under this scheme is not yet sufficiently advanced to permit financing of on-farm development under the proposed second IDA Credit.

25. On-farm development within the first two minor schemes could be financed by ACC under the proposed second IDA Credit in a similar manner as in the East Ghor Scheme, provided that construction will proceed on schedule.

Farm Mechanization -- JD 520,000

26. Except for normal port handling charges, there are at present no significant levies on importation of farm machinery in Jordan. Major tractor and implement companies have sales and service agencies in Jordan and competition among them is keen. Mechanization has progressed rapidly, as indicated below, and the demand for tractors is strong.

	<u>Tractors on hand at end of calendar year number</u>	<u>Tractors sold to farmers number</u>	<u>Tractors sold with ACC loans number</u>	<u>ACC loans for farm machinery in JD</u>
1963/64	1169	188	11	25,000
1964/65	1462	293	60	162,000
1965/66	1773	310	77	171,000

27. In the year ending September 30, 1966, ACC's loan volume for mechanization increased further to about JD 236,000 and more than 100 tractor purchases were financed. In view of Jordan's small land base, at the national and at the farm unit level, and in view of the rapid pace of mechanization in recent years, mechanization assumes a lower priority during the proposed second Credit than it had during the first IDA Credit. The investment target of JD 520,000 would permit financing tractor purchases at annual rates of about 70 tractor units and other additional equipment.

28. Farmers spend approximately JD 1 on trailers, combines and stationary threshers for every JD 2 they spend on tractor purchases. Tractors in greatest demand are in the light to medium weight class, ranging from 30 to 65 hp. Tractor owners whose farms are too small for the capacity of their equipment perform custom services for other farmers. ACC organizes tractor field days and training courses in close cooperation with the equipment companies.

JORDAN

AGRICULTURAL CREDIT PROJECT

Estimated Cost of Subprojects and Utilization

	Four-Year Investment Target (JD'000)	Average Cost Per Dunum (JD)	Total Units Financed (dunums)
Land reclamation	300	15	20,000
Tree crop establishment	400	50	8,000
Farm water supply development	340	36	9,400
On-farm development	280	16	18,000
Farm mechanization (tractor units)	520	(1,250)	(420) <sup>1/</sup>
Unallocated	320	30 <sup>2/</sup>	10,600 <sup>2/</sup>

<sup>1/</sup> Tractor units with complementary attachments. Farmers have been spending approximately JD 1 on trailers, combines and stationary threshers for every JD 2 they spend for tractors and complementary attachments. If this investment pattern continues, JD 520,000 would finance only about 280 tractors during the four-year program.

<sup>2/</sup> If used for land reclamation and olive tree development, approximately 10,600 dunums could be developed.

JORDAN  
AGRICULTURAL CREDIT PROJECT  
Expected Utilization and Results

<u>Crop</u>	<u>Crop Area to be Developed (dunums)</u>	<u>Annual Output at Full Development (tons/dunum)</u>	<u>Total Volume (tons)</u>	<u>Farm Price (JD/ton)</u>	<u>Total Value at Farm Prices (JD'000)</u>
Citrus	12,000	4.00	48,000	30	1,440
Stone fruit	2,000	4.00	8,000	40	320
Grapes					
- Green	2,000	2.00	4,000	30	120
- Blue, with trellis	2,000	3.50	7,000	45	320
Olives	10,600	0.15	1,600	80	128
Vegetables	<u>22,000</u>	1.50	<u>33,000</u>	20	<u>660</u>
Total <sup>1/</sup>	50,600		101,600		2,988

<sup>1/</sup> Of the 50,600 dunums, 10,000 are utilized at present. Production of vegetables on this land, averages 0.5 tons per dunum yielding an estimated JD 180,000. The total incremental return from the full development of the 50,600 dunums will therefore be JD 2.8 million.

JORDAN - AGRICULTURAL CREDIT PROJECT

ANNEX 3  
Table 1

ON-FARM DEVELOPMENT, CITRUS AND VEGETABLE PRODUCTION  
REPRESENTATIVE EAST GHOR FARM, WADI YABES  
10 DUNUM CITRUS, 20 DUNUM VEGETABLES

	Year Before Development	YEAR									
		1	2	3	4	5	6	7	8	9	10
I PRE-DEVELOPMENT COST FOR 30 DUNUM											
		--- JD ---									
Land leveling, head ditch construction	250										
Lining of head ditch	50										
House and farm buildings	100										
Mule	70										
Sub-Total	470										
Less COU/US AID Grant <sup>a/</sup>	150										
Sub-Total - Pre-development cost	320										
DEVELOPMENT AND OPERATING COST FOR 10 DUNUM CITRUS ORCHARD											
Plowing 1 x deep & 1 x shallow	28										
Digging 40 holes @ JD .07	28										
400 seedlings @ JD .07 and labor for planting	36	2									
Manure	35	38	38	38	38	38	38	38	38	38	
Fertilizer 20 - 40 kg/dunum of 0-20-40 @ JD 1.4/kg	28	44	56	56	56	56	56	56	56	56	
Labor for spreading fertilizer	8	8	8	8	8	8	8	8	8	8	
Labor to prepare land for irrigation and fertilising	61	32	33	33	33	33	33	33	33	33	
Water for irrigation @ JD .001/cu.m.	10	12	17	17	17	18	18	18	18	18	
Cultivating, weeding, pruning	30	30	30	30	30	30	30	30	30	30	
Support sticks and labor		36									
Spraying			5	10	10	17	17	17	17	17	
Sub-Total	264	202	187	192	192	200	200	200	200	200	
PRODUCTION COST FOR 20 DUNUM OF VEGETABLES											
Plowing @ JD 1.5/dunum	30										
Furrowing @ JD .25/dunum	5										
Labor @ JD 1/dunum	20										
Manure @ JD 4/dunum	80										
1000 Seedlings / 500 for replanting @ JD .001/seedling	30										
Fertilizer 35 kg/dunum of 0-20-20 and am. sulfate	50										
Sulfur dust @ JD .5/dunum insecticide @ JD 1/dunum	30										
Labor for cultivating, irrigating	40										
Irrigation 800 cu.m./dunum	15										
Harvesting @ JD 1/ton	30										
Sub-Total	100	330	330	330	330	330	330	330	330	330	
RETURNS											
Net from intercropping, 10 dunums citrus Citrus, 4-5 orange varieties, lemon and grapefruit, tons, ( )	50	50				(5)	(10)	(15)	(20)	(30)	(40)
Value @ JD 30/ton, harvest cost at buyer's expense.						150	300	450	600	900	1200
From tomatoes, cauliflower or other vegetables 1.5 ton/dunum @ JD 20/ton	150	600	600	600	600	600	600	600	600	600	600
TOTAL	150	650	650	600	600	750	900	1050	1200	1500	1800
Less Total Cost (I, II and III)	100	914	532	517	522	522	530	530	530	530	530
NET REVENUE OR (LOSS)	50	(264)	118	83	78	228	370	520	670	970	1270
FINANCING											
ACC loan release	250										
Principal Outstanding	250	250	250	250	250	250	250	190	130	70	-
Repayment of principal							60	60	60	70	-
Interest	15	15	15	15	15	15	15	11	8	4	-
Annual cash position after debt service payment	(29)	103	68	63	213	295	449	602	896	1270	

Financial rate of return on basis of incremental costs and returns - 50 percent.

a/ The financial rate of return is 45 percent when the Central Cooperative Union (CCU) US AID grant for land levelling is taken into consideration.

JORDAN - AGRICULTURAL CREDIT PROJECT

WATER DEVELOPMENT, RECLAIMING ROCKY LAND, ORCHARD DEVELOPMENT  
REPRESENTATIVE FARM, NABLUS BRANCH, TULKARM AREA  
80 DUNUM CITRUS ORCHARD OPERATION

ANNEX 3  
Table 2

I	DRILLING WELL - INSTALLING PUMP, ENGINE AND PIPES FOR 90 DUNUM FARM		II	RECLAIMING 80 DUNUM OF ROCKY LAND	
		JD/90 dunum			JD/80 dunum
	Drilling	2,000	Blasting powder, 5 tons @ JD 60	300	-
	Allowance for dry holes	400	Stone crusher rental for crushing 300 m <sup>3</sup> stone	150	-
	Pump, 6" yielding 80-90 cu.m/hour	3,000	Cement for head ditch, 400 sacks @ JD .600	240	-
	Engine (cost range JD 2000-3000)	2,500	Labor, daily wages JD .250 for women, JD .750 for men	5,000	-
	Casing (cost range JD 0-800)	500			
	Pump house 8 x 12 m	1,000			
	Main pipe line 200m, installed	260	III GENERAL OVERHEAD EXPENSES FOR 90 DUNUM		
	Distribution pipes, 600m, installed	550	Operator's residence	-	700
	Water reservoirs, two	500	Barbed wire fence, 1500 m x 6 strands, installed	-	400
	TOTAL	10,710	Farm road, 100 m	-	110
			TOTAL	5,690	1,210

	Year 1	2	3	4	5	6	7	8	9	10
	--- JD for 80 dunums ---									
I	WATER DEVELOPMENT	10,710								
II	LAND RECLAMATION	5,690								
III	GENERAL OVERHEAD	1,210								
IV	CITRUS ESTABLISHMENT AND OPERATING COST FOR 80 DUNUM OPERATION a/									
	Flowing	28	28	28	28	28	28	28	28	28
	Digging 3,600 holes @ JD .04	144	-	-	-	-	-	-	-	-
	Seedling 3,600 @ JD .1	360	20	-	-	-	-	-	-	-
	Planting labor	36	-	-	-	-	-	-	-	-
	Water 144,000 cu.m. @ JD .005 per cu.m.	720	720	720	720	720	720	720	720	720
	Labor for irrigation	76	76	76	76	76	76	76	76	76
	Labor for cultivating, weeding, pruning	160	160	160	160	160	160	160	160	160
	Budding @ JD 36 and support sticks @ JD 216	-	252	-	-	-	-	-	-	-
	Manure and fertilizer	-	216	216	216	216	216	216	216	216
	Sub-Total	1,524	1,472	1,200	1,200	1,200	1,200	1,200	1,200	1,200
	TOTAL COST	19,134	1,472	1,200	1,200	1,200	1,200	1,200	1,200	1,200
	RETURNS									
	Net from intercropping tomatoes, cucumbers, potatoes	1,200	1,200	-	-	-	-	-	-	-
	Citrus, average of 5 orange varieties, lemon, grapefruit, (tons).	-	-	-	-	(56)	(136)	(320)	(480)	(640)
	Value of citrus at farm prices, harvest cost and container at buyer's expense.	-	-	-	-	1,680	4,080	9,600	14,400	19,200
	NET REVENUE OR (LOSS)									
	Annual (loss) revenue	(17,934)	(272)	(1,200)	(1,200)	480	2,880	8,400	13,200	18,000
	Cumulative (loss) revenue	(17,934)	(18,206)	(19,406)	(20,606)	(20,126)	(17,246)	(8,846)	4,354	40,354
	FINANCING									
	ACCs own release	15,000	500	1,000	1,000	-	-	-	-	-
	Principal outstanding	15,000	15,500	16,500	17,500	17,500	17,500	16,500	14,000	10,500
	Repayment of									
	Principal	-	-	-	-	-	1,000	2,500	3,500	5,000
	Interest	900	930	990	1,050	1,050	990	840	630	330
	Annual net cash position after debt service payments b/	(3,834)	(702)	(1,190)	(1,250)	(570)	830	4,910	8,860	13,370

Financial rate of return on investment in (1) Land reclamation  
(2) Water supply development  
(3) Citrus establishment  
} 27% assuming 30-year life of project

a/ Of the 90 dunum land area, 10 dunum are lost in the reclamation process, through terracing and through space taken up by stone walls.

b/ Farmers undertaking orchard development of this type would be expected to be in a position to provide a considerable portion of the funds themselves, since the total investment is a large one.

JORDAN - AGRICULTURAL CREDIT PROJECT  
DEVELOPMENT OF GREEN GRAPE VINEYARD WITHOUT TRELLIS  
50 DUNUM VINEYARD OPERATION

	Cost For One Dunum	Before Development	Y E A R								
			1	2	3	4	5	6	7	8	9
--- JD ---											
<u>RECLAIMING OLD VINEYARD</u>											
Cutting vines, roots and bulldozing	15		750								
Deep plowing	10		500								
Incentive payments to laborers	3		150								
<u>VINEYARD ESTABLISHMENT AND OPERATING COST</u>											
Plowing, cultivating, weeding	1-3		50	50	150	150	150	150	150	150	150
Making holes, planting, incl. cuttings	2.5		125	-	-	-	-	-	-	-	-
Manure	2		-	-	100	100	100	100	100	100	100
Spraying	.5 - 2		-	25	50	75	100	100	100	100	100
Pruning and other labor	2 - 5		-	100	100	150	200	250	250	250	250
TOTAL COST		200	1575	175	400	475	550	600	600	600	600
<u>GROSS RETURN</u>											
Net from intercropping tomatoes, squash, melon, etc.	20		1000	1000							
Grapes, in tons ( )	(.6)-(2)	(.4)				(30)	(40)	(50)	(75)	(100)	(100)
Value of grapes @ JD 30/ton		600				900	1200	1500	2250	3000	3000
<u>NET RETURN</u>											
Annual (loss) Revenue		400	(575)	825	(400)	425	650	900	1650	2400	2400
<u>FINANCING</u>											
ACC loan release to farmer			800								
Principal outstanding			800	800	800	800	800	600	400	200	
Repayment of:											
Principal							200	200	200	200	
Interest			48	48	48	48	48	36	24	12	
Year-end cash position after debt service payments <sup>2</sup>			177	777	(448)	377	402	664	1426	2188	2400

Financial rate of return 38 percent.

JORDAN - AGRICULTURAL CREDIT PROJECT

DEVELOPMENT OF BLUE GRAPE VINEYARD WITH TRELLIS  
20 DUNUM OPERATION, HEBRON AREA

	Cost for 1 Dunum JD/Dunum	Y E A R								
		1	2	3	4	5	6	7	8	9
--- JD ---										
<u>RECLAIMING ROCKY LAND</u>										
Gunpowder and blasting	3	60								
Rental of compressor @ JD 10/dunum	10	200								
Labor, 30 days @ JD 70/dunum	21	420								
Incentive payments to laborers	3	60								
Setting retaining walls	6	120								
<u>VINEYARD ESTABLISHMENT AND OPERATING COST</u>										
Plowing, cultivating, weeding	1-4	20	40	60	60	60	80	80	80	80
Making holes, planting incl. cost of cuttings	2.5	50	-	-	-	-	-	-	-	-
Manure	3	-	-	-	60	60	60	60	60	60
Spraying	1.5-3	-	10	20	30	40	60	60	60	60
Pruning and other labor	2-8	-	40	60	80	110	140	160	160	160
Posts for trellis, installation and wiring	60	-	1200	-	-	-	-	-	-	-
TOTAL COST		930	1290	140	230	270	340	360	360	360
<u>GROSS RETURN</u>										
Net from intercropping tomatoes, squash, melons etc.	20	400	400							
Grapes in tons ( )	(1 - 3.5)				(20)	(40)	(60)	(70)	(70)	(70)
Value of blue grapes @ JD 45/ton	45 - 157				900	1800	2700	3150	3150	3150
<u>NET RETURN</u>										
Annual (loss) Revenue		(530)	(890)	(140)	670	1530	2360	2790	2790	2790
<u>FINANCING</u>										
ACC loan release to farmer		650	1000							
Principal outstanding		650	1650	1650	1650	1650	1300	900	450	
Repayment of :										
Principal						350	400	450	450	
Interest		39	99	99	99	99	78	54	27	
Year end cash position after debt service payments		81	11	(239)	571	1081	1882	2286	2313	3150

Financial rate of return 60 percent.

JORDAN - AGRICULTURAL CREDIT PROJECT

STONE FRUIT ORCHARD DEVELOPMENT

COST AND REVENUE FOR 50 DUNUM OPERATION  
REPRESENTATIVE FARM, HEBRON BRANCH AREA

	1	2	3	4	5	6	7	8	9	10	11	12
	<u>Y E A R</u>											
	--- JD ---											
<u>RECLAIMING ROCKY LAND</u>												
Gun Powder + Blasting	150											
Rental of Compressor (10-15/dunum)	750											
Labor. 29 days @ JD.750/dunum	1,100											
Incentive payments (added JD 10-15 farmer's estimate)	750											
	<u>2,750</u>											
<u>ESTABLISHMENT AND OPERATING COST</u>												
Plowing, cultivating, weeding	50	50	50	50	50	50	50	50	50	50	50	50
Making holes planting (Incl. seeds)	50	-	-	-	-	-	-	-	-	-	-	-
Support sticks - Changing supports	-	100	-	150	-	-	-	-	-	-	-	-
Spraying	-	25	30	40	50	50	50	50	50	50	50	50
Labor for grafting + pruning	-	-	20	35	50	50	50	50	50	50	50	50
Manure every 4th year	-	-	-	-	-	300	100	100	100	100	100	100
General labor and overhead	<u>150</u>	<u>200</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>
Total Cost	3,000	375	350	525	400	700	500	500	500	500	500	500
<u>GROSS RETURNS</u>												
Net from intercropping tomatoes and other vegetables	1,250	1,250	-	-	-	-	-	-	-	-	-	-
Yield in tons ( )	-	-	-	-	-	(50)	(75)	(100)	(125)	(125)	(150)	(200)
Value at farm prices @ JD 40/ton (range JD 40 to JD 50/ton)	-	-	-	-	-	2,000	3,000	4,000	5,000	5,000	6,000	8,000
<u>NET RETURNS</u>												
Annual (Loss) or Revenue	(1,750)	875	(350)	(525)	(400)	1,300	2,500	3,500	4,500	4,500	5,500	7,500
Cumulative (Loss) or Revenue	(1,750)	(875)	(1,225)	(1,750)	(2,150)	(850)	1,650	5,150	9,650	14,150	19,650	27,150
<u>FINANCING</u>												
ACC's Loan Release to Farmer	2,400	-	-	-	-	-	-	-	-	-	-	-
Amount Due ACC	2,400	2,400	2,000	2,000	2,000	2,000	1,600	1,200	800	-	-	-
Repayment of												
Principal	-	400	-	-	-	400	400	400	800	-	-	-
Interest	144	144	120	120	120	120	96	72	48	-	-	-
Annual net cash position after debt service payments	506	331	(470)	(645)	(520)	780	2,004	3,028	3,652	4,500	5,500	7,500

The Financial rate of return would be about 45 per cent.



JORDAN - AGRICULTURAL CREDIT PROJECT  
OLIVE GROVE DEVELOPMENT  
COST AND RETURNS FOR 80 DUNUM OPERATION

	Y E A R											
	1	2	3	4	5	6	7	8	9	10	11	12
	--- JD ---											
<u>LAND RECLAMATION, OLIVE GROVE DEVELOPMENT AND OPERATING COST</u>												
Blasting, clearing, sub-soiling, terracing <sup>a/</sup>	1,200	-	-	-	-	-	-	-	-	-	-	-
800 grafted 8 year-old trees	800	-	80	-	-	-	-	-	-	-	-	-
Digging holds and planting <sup>b/</sup>	160	-	-	-	-	-	-	-	-	-	-	-
Plowing and weeding <sup>b/</sup>	80	80	80	80	80	80	80	80	80	80	80	80
Watering (4 times annually) <sup>b/</sup>	200	200	-	-	-	-	-	-	-	-	-	-
Pruning and general care	24	24	24	24	24	24	24	24	24	24	24	24
Total	<u>2,464</u>	<u>304</u>	<u>184</u>	<u>104</u>	<u>104</u>	<u>104</u>	<u>104</u>	<u>104</u>	<u>104</u>	<u>104</u>	<u>104</u>	<u>104</u>
<u>ANNUAL RETURNS</u>												
Yields alternating (5-10-15-20-25) 15 kg./tree <sup>c/</sup>	-	-	-	-	(600)	(1,000)	(1,200)	(1,200)	(1,200)	(1,200)	(1,200)	(1,200)
Value @ JD .08/kg <sup>d/</sup>	-	-	-	-	<u>480</u>	<u>960</u>	<u>960</u>	<u>960</u>	<u>960</u>	<u>960</u>	<u>960</u>	<u>960</u>
<u>NET REVENUE OR (LOSS)</u>	<u>(2,464)</u>	<u>(304)</u>	<u>(184)</u>	<u>(104)</u>	<u>376</u>	<u>856</u>	<u>856</u>	<u>856</u>	<u>856</u>	<u>856</u>	<u>856</u>	<u>856</u>
<u>FINANCING</u>												
ACC's loan release	2,000	240	-	-	-	-	-	-	-	-	-	-
Amount due ACC	2,000	2,240	2,240	2,240	2,240	2,240	1,843	1,422	975	501	-	-
Repayment of :												
Principal	-	-	-	-	-	397	421	447	474	501	-	-
Interest	120	134	134	134	134	134	110	85	58	31	-	-
Annual net position after debt service payment	(584)	(198)	(318)	(238)	242	325	325	324	324	324	856	856

Financial rate of return is 17 percent.

- a/ When land reclamation costs exceed a level of JD 15 per dunum, the returns from olive trees are not commensurate with the investment costs.  
b/ Wages at JD .5 per man day.  
c/ Yields though alternating as indicated would average 15 kg/tree with 10 trees per dunum.  
d/ Cost of harvesting at contractor's expense.

