

Farmers face up to food-supply challenge

THE Jordan Valley has seen some spectacular advances in recent years. After an injection of more than \$1,500 million, the area has become the leading local source of agricultural products. The introduction of modern techniques, such as plasticulture and drip irrigation has been at the heart of developments. The increase in vegetable production has been particularly notable, rising from 144,800 tonnes in 1978 to 373,800 tonnes in 1983.

However, Jordan's farmers still face a number of challenges. Most important is the need to reduce the JD 100 million (\$259.5 million) the kingdom spends each year on grain, meat and fruit imports. With about JD 40 million (\$103.8 million) going on wheat and wheat flour, the top priority must be to achieve a higher and more stable grain harvest. Average annual production is 60,000 tonnes, but output has varied wildly from the 1980 high of 133,000 tonnes to the record low of 8,000 tonnes in 1983/84 — as a result of the serious drought.

At present, most grain is raised in rainfed areas, and limitations of rainfall and suitable land preclude any great expansion of the area under cultivation. Emphasis, therefore, is on increasing yields through the use of more sophisticated techniques and higher-quality seed.

Shortage of animal feed is another serious problem. Rising living standards and steady population growth have increased the demand for red meat, which local livestock producers are ill-equipped to satisfy. Even the poultry farms, which now supply all the country's needs for chicken meat and eggs, depend entirely on imported feedstuffs.

More efforts are being made, therefore,

to improve fodder output. Barley, the main fodder crop, faces the same problems as wheat. Production peaked in 1980 with a harvest of 38,000 tonnes, but dropped to 3,500 tonnes in 1983/84.

The World Food Programme (WFP) and the South Australian government organisation Saagric International are working to interest local farms in wheat/fodder crop rotation. This, they feel, would not only increase yields, but would also help to maintain soil quality.

An ambitious private project to grow wheat, barley and vegetables on irrigated land is currently being planned in the Hamad Basin region in the northwest, using underground water supplies. About 86,000 dunums (8,600 hectares) will be cultivated and should yield 70,000-80,000 tonnes of wheat, 30,000 tonnes of barley and 30,000 tonnes of maize a year. Many observers, however, are sceptical about the long-term viability of such a scheme, pointing to the

water supply problems now being faced by similar projects in Saudi Arabia.

Despite the feed shortage, Jordan Co-operative Organisation (JCO) is currently working to boost red meat output. Animal production adviser George Goddard feels that if livestock farmers could meet 50 per cent of local demand they would be doing well. Ever since 1981 the JCO has been organising co-operatives for sheep and goat farmers. Benefits to members include regular distribution of animal feed and access to funds to support lamb-fattening projects. Around 10,000 lambs are now being fattened. When brought to market they should be around 10 kilos heavier than average lambs of their age.

JCO is also working with the WFP on rangeland development. An agreement has been signed between the Agriculture Ministry and the UN Environment Programme (UNEP) for a pilot project at Lejjun in southern Jordan. Experience gained there should then be applied to improvement of up to 1 million dunums (100,000 hectares) of rangeland.

As part of the Highlands Development Programme, farmers are being encouraged to work on terracing and fruit-tree planting. This will not only help to reduce soil erosion in upland areas, but will also boost stone-fruit production. The programme — which has been running for 20 years — slowed down in the 1970s, but was revived three years ago and has now been extended for a further two years.

A pilot project to grow apples using drip irrigation is under way on 4,000 dunums (400 hectares) of hilly ground at Shobak, in the south. The water is to come from underground aquifers which are replenished by annual snowfalls.

As demand for water increases throughout the kingdom, the Water Authority of Jordan is stepping up the search for new sources. It is also introducing wastewater recycling plants for agricultural use. But even when all these come into operation, availability of water will remain a major constraint on agricultural expansion. This is largely because the needs of industrial and domestic users are also growing.

Although self-sufficiency in food produc-

Olive and other fruit-tree planting is being encouraged in highland areas



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tion may never be achieved, improvements in productivity can always be made. However, with increased production comes greater pressure on Jordan's overstretched marketing machinery.

In an attempt to counter this problem, a specialist marketing company was established in 1983. Its brief was to handle the grading, packing and marketing of all Jordan Valley crops. To date, the company has been a failure, largely due to lack of administrative experience. It is now being reorganised, and former agriculture minister Marwan Dudin has been appointed to head the operation.

The company's work should be easier now that farmers have adapted to the optimal cropping pattern laid down by the Agriculture Ministry. Applied to all vegetables grown on irrigated land, the system limits land allocation for tomatoes, cucumbers, eggplants and cauliflowers, while offering incentives for increased planting of onions, potatoes and wheat.

Market emphasis

A key question the company will have to face, however, is whether emphasis should be placed on the domestic or the export market. Osama Bilbeisi, assistant under-secretary at the Agriculture Ministry, is heavily in favour of concentrating on the home market. He suggests that estimates of local consumption are based on what buyers are able to find in the marketplace, rather than on what they might actually want to buy. He maintains that an efficient, nationwide retailing operation would boost consumption, particularly of traditional dairy produce and home-grown vegetables.

Food processing is another area in need of reappraisal. The agricultural marketing company in the Jordan Valley has a tomato-processing plant, but production

has been interrupted by technical problems over the past two years. Two new ventures are now being discussed between Jordan and Iraq. One is a tomato juice and orange juice factory to be based in Jordan, the other a vegetable-pickling plant in Iraq.

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Tenders called for national water network

THE reluctant cancellation of the Maqarin dam project, which could have been the answer to all Jordan's water problems, has galvanised the government into a complete reappraisal of the country's water supply programme over the past three years. Poor relations with Syria — whose border the dam would have straddled — are blamed for the scheme's failure. The Water Authority of Jordan (WAJ) is now facing up to the task of making the best use of the country's limited resources.

Planning has been simplified since WAJ was set up in February 1984, absorbing the Amman Water & Sewerage Authority, the Amman Water Supply Corporation and the water departments of the Jordan Valley Authority and the Natural Resources Authority.

WAJ has recently submitted its water development plans to the government, but the details have not yet been made public. A key element is known to be the "national water carrier," a proposed nationwide distribution system to pipe water to all settlements of over 500 people. Preliminary

surveys have already been carried out on the section of the network north of Amman. Consultants were the UK's Watson Hawkesley and Sir Alexander Gibb & Partners, and the local Arabtech Company.

Tenders have now been invited from international companies and local firms to bid for the consultancy contract for the northern section, to include building of a pipeline system and pumping stations. Tenders for the network south of the capital are expected to be called in the next few months.

WAJ officials are confident that financing will be found, although the total cost is expected to be between \$350 million-400 million. When complete, the network will allow WAJ to ensure an even distribution of water throughout the country, thus minimising the impact of drought on particular areas.

Meanwhile, several other projects are in train to increase the water supply. Boreholes have been drilled along Wadi Wala, 45 kilometres south of Amman, to help meet the capital's growing industrial and domestic needs. Tenders have been invited for piping the water to the city.

A pipeline from the East Ghor canal at Deir Allah will soon bring 45 million cubic metres (m³) of water a year from the Jordan Valley. It will feed a 250,000-m³ reservoir, built by the UK's George Wimpey International at Suweilah, on the outskirts of Amman. The \$110 million scheme has involved several foreign firms: Lebanon's Mothercat laid the pipeline, under supervision from US-based Stanley Consultants, and South Korea's Hanbo General Construction Company (HGCC) built the pumping stations and water-treatment plant.

Soon after the Maqarin dam was abandoned, HGCC won two major contracts to increase the capacity of existing dams. The company started work in early

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