Syrian Arab Republic

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During the last ten years, the contribution of agriculture to the national income was important ranging from 26.4% (1990) to 24.5% (1997).

Incidence of total fruit tree industry (fruit tree, olive, grapevine, citrus, etc) considered as fresh and canned products in the agriculture production (tons) was 28.2 % (1989) and 21.3 % (1998). During 1997,the imported agricultural commodities value in Syria was 4162 million S.P, meanwhile the value of exported agricultural commodities was 10,591 million S.P.(50 S.P= 1 DU$).

A summary of the major achievements of the national agricultural Program during the last 25 years is given below.

Agriculture position in the overall economy

The total area of S.A.R. is 185.18 million ha, meanwhile the cultivable land is 5,981,411 ha, equal to 32% of the total country area. In 1998, the total cultivated area was 5,484,030 ha, including 1,213,108 ha under irrigation, whereas the area under fruit trees was 775,346 ha (120,181 ha under lRR+ 655,165 ha under non IRR). Fruit trees are an important crop in Syria, they have adapted to climatic conditions in different regions along many years.

The agricultural production value for 1997 amounted to 255,069.8 million S.P., including 16,816.3 million S.P. for plant production. The total value of

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agricultural commodities for commercial exchange and their percentage to the total exchange of the country in 1997 were as follows:

Commercial Exchange	Value million S.P	Percentage
Import	4162	9.2%

Sector Policy

Agriculture represents the principal economic output in Syria and constitutes a large proportion of the national income (24.5% in 1997). It has priority in the Syrian government policy. The food security as one of the centralized objectives was achieved for essential crops such as cereals, legumes and fruit crops.

The government program has focused on a number of strategic priorities. Some of them are: acceleration of agricultural production growth by increasing the productivity of the major crops to meet the needs of the country population, elimination of import, increase of export and conservation of the national resources. It aims at encouraging and supporting national efforts for production, maintenance and distribution of healthy plant propagating material. In accordance to the regional project UNDP FAO/ RAB/88/025, the national program for controlling virus and virus-like diseases of fruit crops started in 1994. Some advantages were achieved in the field of facilities needed for the monitoring of plant propagating material. The assessment of the phytosanitary status of stone fruit trees and grapevine in Syria was carried out.

Fruit trees industry: production, trade flows and germplasm

Olive. During the season 1998 the olive trees in the country amounted to 62.3 millions, including 36.7 million of fruit bearing, meanwhile their production reached 785,000 tons. The olive industry is based on the local varieties such as Sorany, Khadary, Dann, Nibaly, Kaisy, etc., which represent

more than 95% of the total production. However, about 615,295 tons of olive fruits in 1998 were used for the production of 144,820 tons of olive oil, a part of it was exported. During the season 1997, about 200 tons of olive products were exported. In this case, the import was zero.

Grapevine. During the season 1998, the total grapevine-growing area in Syria amounted to 69,495 ha, while the total number of grapes was 55.3 millions of which 47.0 million of fruit bearing; their production amounted to 590,000 tons. The quantity of produced grapes was still sufficient for local fresh consumption (418,344 tons). The additional production (50,268 tons) was used for preparing Raisin (13,487 tons), about 29,007 tons of grapes were used for the production of 9,380 tons of treacle, and 92,381 tons of grapes were used for manufacturing wine. During the season 1996, about 5,736,000 layers of different sorts of wine were manufactured, a part of it was exported to other countries. During the season 1997, the total exported grapes were 20,000 tons, while the importation was stopped.

The local Germplasm of grapevine is very rich and economically important for the national breeding program. Hulwany, Balady, Zainy, Salty, Betamony, Biady, Dumany… etc are good table and industry grape varieties. They are grown in different regions of the country.

Citrus. During the season 1998, the total area under citrus trees in Syria was 26,400 ha, whilst the citrus trees number in the country was 10.745 million, including 7.439 millions of fruit bearing; their total production amounted to 740,000 tons (438,960 tons of Oranges, 68,049 tons of Lemons and 232,991 tons of other citrus fruits). Many international varieties of citrus such as Navel Orange, Mawardy, Valencia, Yafawy, Clemantins, Satsuma, Manula, Meyer, lnteedonato, Monaclo, Grapefruit, Mandarins...etc. have been grown, mainly in the coastal area of the country. During the season 1997, about 9000 tons of citrus fruits were exported, meanwhile the importation for the same products and year was zero.

Fruit trees. The Pome and stone fruit trees are an important crop in the Syrian agriculture. During the season 1998, the total cultivated area under Pome and stone fruit trees in the country was 134,293 ha whilst the total number of Pome and stone fruit trees was 46.09 million, including 28.834 million of fruit bearing, their total production amounted to 639,748 tons.

Many local and international varieties of pome and stone fruit are grown in the country, they are given below:

Apple:	Golden Delicious, Starking Delicious, Double Red, Gold Spore, Stark Crimson. etc.
Pear:	Kushy, Sbaadona, Miskawy, Santa Maria.
Quince:	Orange, Vandeman, Balady. etc.
Apricot:	Balady, Wazary, Ajamy, Tadmoury, Chakar para,Sendiany, Om-Husain, Hamwy, Mushabah lawzy, Francawy, Early Orange, Klaby. etc.
Cherry:	B. Bing, St. Hardy Jiant, Black Tarterian, St. Lambert, Pricose, Japoly, Van Smith, Bing Bartlate…etc.
Peach:	Dixired, Redhaven, Red Gold, RedCal, Red Club, J. H. Hale. etc.
PIum:	Formosa, Santa Rosa, Blanco, Stanley, Mammouth, Cardinal. etc.
Almond:	Ferragnes, Princesse, Four Couronne, Texas, Auga, Dafadii. etc.
Green Plum:	Ajamy, Ballowry, Tuffahy etc.

During the season 1997, the evaluation of pome and stone fruit commodities balance in the country revealed that, about 27,700 tons of pome and stone fruits were exported, whereas the importation for the same products and year was zero.

Sanitary status of the fruit crops with particular reference to quarantine agents:

Olive. Except for peacock eye spot of olive leaves (*Spilocaea oleagina*), Bacterial Knot (*Ps.savastanoi*) and wilt (*Verticillium dahliae*), the research in the field of olive virology and nematology has not been carried out yet. We have not any scientific data covering the sanitary status of olive in Syria mainly for virus and virus-like diseases.

Grapevine. The healthy status of selected grapevine varieties was evaluated during the last three years (1995-1997) by using DAS-ELISA. A total of 214 varieties and rootstocks were tested for the presence of three viruses (GLRaV-1, GLRaV-III and GFLV) under natural infection. A total of 92 grapevine varieties and rootstocks (69.3% of tested vines) were found to be virus free. GLRaV-III was found in 16.0 % of tested vines, GLRaV-I in 15.1% and GFLV in 4,8% of total tested vines. The sanitary selection is effective, allowed the selection of many varieties that are free from the major viruses. As a result of incompatibility phenomena of grafted vines in Syria, the grapevine fleck virus (GFKV) and grapevine virus A(GVA) were found in some tested plants. Research studies on fruit crop virus vectors (insects, nematodes and fungi) have not been carried out yet, while many studies in the field of fungal and bacterial diseases of grapevine were achieved.

Citrus: Malsecco (*Deuterophoma tracheiphila*) on lemon, gummosis and root rot (*Phytophthora.* spp.) on different species of citrus trees are the most common diseases in Syria. The stubborn disease caused by *Spiroplasma citri* was recorded on Navel orange, Valencia and grapefruit in Latakia region. Many mother plants of citrus varieties in collection blocks were tested by using indicator plants (Indexing) for the presence of major virus and virus-like diseases under natural infection. Results showed that, Exocortis, Cristacortis, Cachexia, Stubborn and Impietratura were found. The destruc-

tive diseases such as Tristeza, Greening, Witches' Broom and Citrus Canker are not present in Syria.

Fruit trees (pome and stone fruit trees). The sanitary status of selected varieties of stone fruit was assessed during three years (1995-1997) by using DAS-ELISA technique. A total of 146 stone fruit varieties were tested (1090 trees/grafted seedlings/seedlings) for the presence of five viruses (PDV, PNRSV, PPV, ApMV and ACLSV) under natural infection. A total of 118 stone fruit varieties (59,2% of tested plants) were found to be virus-free.

Mahaleb, Plum and almond, all stone fruits including apricot, Peach, nectarine and sweet cherry were infected with five viruses. PDV was found in 18,8% of tested trees, PNRSV in 14.9%, ApMV in 12.5%, PPV in 9,3% and ACLSV in 4.6% of total tested trees. The sanitary selection is effective, allowed the selection of many varieties that are free from the major viruses. The presence of PPV is the major threat to the stone fruit industry in Syria, but it is still of limited distribution. The eradication of the Sharka disease is still possible, whilst strict internal plant quarantine measures are needed to prevent its further spread. Fire blight is a serious, worldwide disease of fruit trees, it is not recorded yet in Syria. ApMV and ACLSV were recorded on stone fruit trees, the two viruses and others are not investigated on the Pome trees in the country.

Nursery sector

During the last 25 years, many advantages have been achieved in nursery activities in Syria. Public Nurseries are organized by MAAR. The total production of grafted seedlings, seedlings and rootstocks of fruit crops from all species increased from 0.783 million in 1970, to 23.3 millions in 1990.

After 1990 the nursery production became stable and reached 11.763 millions during the season 98/99. It meets the country needs.

Evolution of nurseries number and their area in Syria

During the season 1986, a new Committee was organized by the decree Nr 186. It is mainly aimed at supporting the national program with available facilities, which are necessary for monitoring and increasing the production of plant propagating material to meet the needs of the country, eliminating imports and stabilizing exports.

Regarding the nursery activities during the season 97/98, the total production of grafted seedlings, seedlings and rooted shoots reached 13.378 million, including 4.0 million for olive, 0.750 million for citrus, 0.3 million for grapevine and 1.745 million for pome and stone fruits. 260.042 million S.P. was the total budget used for this work plan.

Plant protection: service and institutions

The Department of plant protection service is organized in the framework of the Ministry of Agriculture and Agrarian Reform (MAAR) in Syria. It is responsible for all plant protection activities in the country including quarantine service Division. Plant Protection Division at the Directorate of Agr. Sci. Research is responsible for plant protection research, it is a scientific institution under the umbrella of MAAR, it has some facilities for the diagnosis of main phytopathological, entomological and nematological agents.

Four plant protection Divisions at Four universities in the country (Damascus, Aleppo, Teshreen and AI-Baath) are teaching the plant protection sciences, their activities covering training and research.

Pomology and certification institutions

The Department of horticulture service is organized in the framework of MAAR, its responsibility covering all plant production activities, including nursery sector. There are three Specialized Boards

(citrus Board, olive Board and pome fruit Board) belonging to the MAAR, their activities covering all aspects of cultivation, production service of these essential crops. Four Horticulture Divisions at four universities in the country (Damascus, Aleppo, Teshreen and Al-Baath) are teaching the horticulture sciences, their activities covering also training and research. The horticulture Division at Directorate of Agr. Sci. Research is organized in the MAAR framework, it is responsible for research activities covering all species of fruit crops.

Certification

Legislation: In 1953, the nursery sector at the Department of Horticulture (MAAR) was established in Syria, and started its activities in the field of production of fruit tree nurslings. On 19 June 1975, production, maintenance and distribution of plant propagated material including export and import were organized by the Decision number 63/T, which was issued by the Syrian government.

On 26 June 1989, the technical protocols dealing with the production and conservation of propagating material of fruit trees in public nurseries were issued by the Decision number 39/T. On 4 April 1991, the tissue culture technique for propagation of planting material was allowed by the decision nr. 9, on 19 October 1991, the legal and technical protocols of private nurseries in Syria and their activities were organized by Decision number 26/T.

Certification of propagating material: Although, there has been quick striking in Syria in the field of cultivation of fruit trees and fruit production of different species, and great advances have been achieved in nurseries activities over the last 20 years, but these advantages were limited from the absence of certification program. The national certification program for the sanitary and genetic improvement of stone fruits, grapevine and citrus began in 1994, in collaboration with the regional project of UNDP/FAO/RAB/88/025 (control of virus and virus-like diseases of fruit crops).

In the activity of the project, the assessment of the sanitary status of stone fruits and grapevine in Syria was done. There are not laws in Syria for the application of the national program to regulate production, maintenance and distribution of certified propagating material. At present, the activity of national certification program is not run, because the country lacks the necessary infrastructures such as greenhouses for biological indexing, screenhouses for conservation of nuclear stocks (primary sources), some laboratory equipment, available blocks for multiplication cycles of certified material, and financial support for covering the program activities.

Quarantine. Plant Quarantine Service at the Department of Plant Protection Service in general and quarantine legislations in particular are improved, in compliance with EPPO guidelines and directives. Quarantine A and B lists are reviewed and proposals made to adjust the lists, whereas a list was made with Q-organisms to be monitored every year.

Facilities needed for the successful application of a national certification program:

- Provide national program with some chemicals, antiserum, simple equipment and specialized journals to get the program forward.
- long-term and short-term stages abroad on the new testing techniques for detection and diagnosis of virus and virus-like diseases, on the production of antiserum, and of virus-free planting material by using facilities, available in some participating countries.
- Uniformity of testing procedures as well as technical protocols, applied for diagnosis and certification of planting material among participating countries.
- Exchanging virus-free propagating material, indicator plants and new testing technological among participating countries.

- Making the information on destructive diseases (Tristeza, Canker, Witches' Broom, Greening, Flavescence Dorée, Pierce's disease, Sharka) available across participating countries.

- Supporting national program with all information covering citrus, grapevine, olive and fruit trees viruses by using the internet.

- Strengthening the national capabilities (strategy and logistic) towards improved channelling of certified propagating material to the target beneficiaries.

- strengthening the quarantine procedures in order to prevent introduction of destructive diseases.

Selected Publications

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Agricultural data from Syria

Year	Total production under fruit trees	Total production under crops, vegetables and fruit trees
1989	1972154	6982466
1998	2977287	13961077

Area, production and number of pome and stone fruit trees in Syria 1998

Species	Area/ha	N° of trees "000"	N° of fruit bearing trees "000"	Produc-tion/tons
Apricot	12409.0	3187.0	2443.0	67192.0
Plum	2584.0	1199.0	1001.7	22186.0
Green Plum	1603.0	733.0	638.0	12745.0
Cherries	19306.0	5523.0	3027.0	56003.0
Almond	38198.0	14363.0	8477.0	67150.0
Peach	5230.0	2613.0	1940.0	43087.0
Apple	48492.0	16150.0	9700.0	356175.0
Pear	5520.0	1912.0	1338.0	* 2666.0
Quince	591.0	411.0	342.0	6719.0

**Due to the epidemic Psylla damage, the yield of pear trees in the country was dropped*

Evolution of nurseries number and their area in Syria

Year	Number of nurseries	Area of nurser-ies/ha	Area under cultivation in nurser-ies/ha
1985	35	3271.0	1100.0
1998	69	5014469.8	1202427.8

Evolution of plant propagated material export in Syria (grafting and seedling)

Year	Number of nurslings				
	Total	Olive	Citrus	Grapevine	Fruit tree
1994	173500	164500	5000	0	1500
1995	217850	147500	0	0	58550
1996	509500	318500	0	0	179500

1997	649000	610000	1000	2000	11000
1998	505125	470075	0	225	18000
1999	545749	509115	1000	300	20195