

Episode 1- Alternative Crops

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Host: After more than a decade of conflict in Syria that has devastated and affected many sectors, the agricultural sector is one of those sectors that has been severely affected, particularly in terms of infrastructure and agricultural services, and farmers have been displaced or had to abandon their fields.

During this period, there have been major changes in the agricultural sector and its productivity, but also in the type of agriculture, particularly alternative agriculture, and strategic agriculture in Syria.

Question: In your opinion, why do we, as researchers, engineers, and farmers, need to pay attention to these crops?

Presenter: Before I start talking about alternative agriculture, I think we should talk about cotton cultivation and production in Syria, as it is this problem that has highlighted to me the urgent need to begin using alternative crops.

In 2011, farmers had no choice but to buy cotton from the government for 30000 L.S. and to buy 3 tonnes of cotton at a time, which means that his purchase price for 90.000 L.S is equivalent to 1800 U.S. dollars (the exchange rate of the dollar in 2011 50 L.S.). Cotton is known to be sold through the World Exchange for 1000 U.S. dollars per ton of cotton. This amounts to a loss of \$800 per ton. Here the total loss of the annual season is 250000 times 800 = 2001 million 10.

Faced with the enormity of this loss, we must resort to a solution that is available through the manufacture of cotton wool using silks used in the manufacture of clothes that add hundreds of millions. The government responded and imported the spinning factory in Latakia, of course, with a corrupt deal. Unfortunately, when the factory started to produce, the ruling family took control of its management and thus confiscated it. This is how this solution was not possible, and here we have to resort to the other solution which is growing alternative crops.

Alternative crop cultivation is a necessary choice, not a luxury. Farmers whose experience and instincts have turned to these economically viable crops are therefore inclined to do so.

Host: I wanted to ask about the most important crops that are recommended for farmers to grow, especially since, as I mentioned, they are considered economically viable. Are these crops suitable for Syrian conditions?

Presenter: There are many alternative crops and for their investment appropriate environmental (climate, soil) and economic conditions must be met, especially marketing and manufacturing, among others. Here I will include some alternative crops that do not eliminate strategic crops but rather support them and provide a state of economic balance, especially when some strategic agricultural crops are exposed to environmental or marketing risks and sometimes to medical or other injuries. For example, the cultivation of wheat in Syria is an important and essential element in the food security ladder, which requires attention to its stable and growing production.

Host: What do you mean by environmental terms? And economical?

Presenter: Proposed alternative agriculture that meets the appropriate conditions, in particular the possibility of agricultural service, easy investment and marketing, in addition to acceptable costs, especially in the field of irrigation water needs. Today, this is a major challenge in light of the lack of energy means to pump water from parents and to operate agricultural and other machinery. The following are some of the plants suitable for planting in the Syrian climatic conditions. Other crops are also suitable and economically feasible, such as black grain and others.

- Anise
- Cumin
- Fennel
- Fenugreek
- coriander
- soybean
- saffron
- Lentils

Host: Would you kindly tell us more about the uses of these crops and the most important points to consider? What about Anise?

Presenter: A herbaceous plant, used in pastry and sweets, that is useful in the field of digestive, nervous and respiratory systems and is considered an anti-inflammatory, containing: Protein, carbohydrate, fiber, fat, vitamin A, and vitamin C, and of magnesium, zinc, and sodium metals.

It is worth noting that the Anise needs a moderate climate in terms of temperature and relative humidity, and that the appropriate soil is red during rain-fed and yellow cultivation when irrigation is adopted. The Anise crop contains many diseases, including willow and willow diseases.

The crop is subjected to the growth of both high and broad-leaved weeds.

Anise is sensitive to sudden climate changes, so it prefers not to experience drought for long periods.

In a return to the cotton economy, where a farmer sells a ton of raw cotton for \$600 while a ton of Anise costs about \$2600. It is a big difference, and the most important difference in the expensive cost of growing cotton is irrigation, fertilization, prevention, and harvesting, unlike the Anise crop, which is a mild plant in terms of both its requirements and its low farming costs.

During rain-fed agriculture, a per hectare of yanson produces 600-900 kg.

Host: Cumin?

Presenter: Herbaceous plant used in baking and pastry; medically in treating digestive system diseases, an antioxidant, a sexual stimulant, a cholesterol swindler, treating rheumatism, promoting hair growth, skin and skin protection, treating eczema and psoriasis, a neurotranquilizer containing saturated fats, carbohydrates, fibre, and proteins, containing

vitamin A, B1, B6 and C, and minerals such as phosphorus, potassium, zinc, iron and magnesium,
Prices range from \$2000- 3000 per ton.

While the potential for insect and fungal injuries is similar to the Anise and its irrigation needs, it is often cultivated for its seed by most farmers, supplementary irrigation, provided it is available at a rate of one or two villages during the growth season, will lead to increased production per hectare. In the current situation, water is becoming scarce due to the lack of energy required for pumping from wells, which has led to the transfer of rainfall cultivation, despite the decrease in the total production per hectare of 500- 800 kilograms. Also, I can advise a farmer to cultivate good drainage light land to reduce the diseases of the wilt, and also to avoid the spread of diseases, pests, and insecticides, he advises following the agricultural cycle.

Host: Fennel?

Presenter: Herbaceous plant of medical significance as an intestinal housing and gas centrifuge; helps to dissolve the mucus in the respiratory system as a mine repellent; and has a nutritional significance as it is used in perfume, sweets, soap and other cleaning and cosmetic products.

Contains: Vitamin A, vitamin B and vitamin C, and minerals on potassium, iron, magnesium, and sulfur.

The crop needs 2-3 supplementary refrigerators during the agricultural cycle and irrigation stops at least two weeks before harvest.

In their growth and development, plants need a long day of light (12 hours), fertile soil and a temperate climate.

To grow a nut, a hectare requires 6 kilograms of seed, on average, at a depth of 2-3 centimeters, at the beginning of spring, to produce 300-400 kilograms.

Diseases of root and urine rust and of fine-grained whiteness are prevalent, therefore it is advisable not to cultivate it in areas that are subject to a sharp decrease in relative humidity. Prices per ton range from \$1500- 2000.

Host: Coriander?

Presenter: Herbaceous and aromatic plant, mannequin, used frequently in spices and in medical industries. Benefits include: Lowering cholesterol in the treatment of fungal conditions such as eczema, anemia, and the gastrointestinal tract, the prevention of hypertension, bone health, and the stimulation of insulin secretion, an antioxidant that reduces the risk of cell damage, inflammation, and cancers.

Bacterial diseases, such as leaf stains, wilts, microscopic eggs, root rods, as well as piercing insects, red spider, and rodent worms, often affect the crop.

Needs supplementary irrigation like the crops I mentioned earlier.

The price per ton of dry coriander is \$600 - 800.

There is no doubt that some people have some questions about growing coriander in Syria and the areas suitable for planting it. The Mediterranean regions are suitable for planting and Syria is therefore one of the most important producing countries, with most of the

production going to export, as well as a potential drought, and growing on an area of approximately 4000 hectares.

Also, some may wonder about the productivity of one hectare of coriander? About 500-600 kilograms of dry seeds per hectare, the price per ton is \$600-800.

Host: Soybean?

Presenter: A herbaceous legume with a high content of proteins, 17% oils, fats, carbohydrates, and fibre, plus a high content of iron, magnesium, phosphorus, potassium, and zinc, and vitamins, such as B1, B2, and 6, among others.

Its medical significance is illustrated by its ability to lower cholesterol, protect against cancer, treat Alzheimer's with all amino acids, protect the arteries of the heart and prevent osteoporosis. It has become increasingly important in food processing, and has recently entered into many products, including many meat alternatives, which many vegetarians prefer.

Cultivation occurs in the spring and is found on good-drained, ventilated and yellowish mud. It is also affected by several bacterial and fungal diseases, such as microscopic eggs.

Soybeans has water and fertilizer needs and needs to be irrigated 3-4 Riat in the ceremony to achieve a high rate of production per hectare. It is also sensitive to increasing relative humidity in the soil, where it is exposed to some fungal injuries.

by containing the female estrogen hormone at high rates and in some cases consumed in large quantities as an alternative to meat and milk for its low price

The question is, what harm is expected here as it contains estrogen? Of course sterility. Single-hectare productivity? Soybeans produce about 600 kilograms per hectare, and the price per ton is estimated at \$1000. Thus, their cultivation is considered to be of high economic value.

Host: Fenugreek?

Presenter: A herbaceous plant with roots and a cradle that stabilizes nitrogen in the soil, used as fodder and manure, and for pharmaceutical use.

The rind contains fibres, starches, proteins, vitamin C, vitamin B and salts: Calcium, phosphorus, sodium, and iron make it a medicinal plant par excellence, helping to treat constipation, loss of appetite, reduce blood cholesterol and treat high sugar.

Per hectare yield is about 2000 kilograms at \$600- 800 per ton.

Soybeans are susceptible to fungal diseases, the most important of which are microscopic eggs and rust. It is worth noting that it is necessary to avoid farming in humid conditions in order to avoid exposure to root rot. One of the most important insects that afflict the male-domed spider.

Plants are grown in the early winter on good drainage and ventilation land such as mud and sand and need to be irrigated at a rate of 7 reais during the agricultural cycle in order to achieve high productivity.

Question: Warnings of overuse of the ring? In pregnant women, abortion or early childbirth causes an odor and, in some cases, loss of consciousness. Diabetics may cause a sharp drop in blood sugar, treat inflammations in the body and increase the milk damage in breastfeeding women.

nutritional value: It contains proteins, carbohydrates, fats, fiber, potassium, sodium, calcium, iron, magnesium, phosphorus, zinc and vitamin C and A.

Host: Saffron?

Presenter: Herbaceous plant with deep roots in the soil, which flowers in the fall where the production of 1 g requires 150 flowers.

It's good for heart health, diabetes, depression, sexual impairment, eye health and also for treating respiratory infections.

The climatic conditions in Syria are ideal for the success of saffron farming, with agriculture starting in September closely by means of bulbs. Saffron crops are exposed to some fungal diseases, the most important of which is coronary and insect degradation, like manna in all its types.

Saffron crops do not need large amounts of irrigation water and thus water is watered when needed. One of the most common fungal diseases is tuberculosis, and insects such as aphids.

Iran is the world's top producer at 75-90% at 330 tons per year.

The price of saffron ranges from \$3500-16000 per kilogram, depending on its type and purity,

Host: Why is it so expensive?

Presenter: Because no crops close to saffron can be grown. And because agriculture is hand-made, where every bulb is grown and grown to give only 2-3 flowers.

Each flower gives red and white strings, after which the red part becomes separated from white, so it is a painstaking process that needs a lot of time and labour.

Host: How are saffron used?

Presenter: It is used with food and beverages so that its consumption is avoided on its own since its consumption in large quantities or on its own invalidates its benefits and can cause damage to the heart and beyond.

Host: Lentils?

Presenter: A alkali crop containing 25% protein and 45% carbohydrate and fibre. It is the equivalent of meat and contains iron, copper, phosphorus, calcium, iron, zinc and potassium. as well as carbohydrates, fiber and some vitamins (B, D, S).

The lentil is grown early in the spring to avoid frost infection and favours well-drained, ventilated light soils as well as an increased relative humidity in the soil.

One hectare of seed needs 70 - 120 kilograms and stays on the ground for about 150 days, with a hectare produced for about 1 tons during rain-fed agriculture and 1,5 tons when using irrigation.

Lentils are prone to developing fungal diseases, the most important of which are microscopic eggs, wilts and rust. The US almond worm, the manna, is an insect injury.

Irrigation is usually not needed.

Its benefits include cholesterol reduction and prevention of atherosclerosis and cancers, beneficial to anaemic patients, urinal constipation therapy, indigestion and milk damage in the infant.

Canada is the world's first producer with about 3 million tons, followed by India with about 1 million tons.

Harvesting takes place after 3 months at a rate of 800-1500 kilograms per hectare.

Host: Why has Canada's production increased so much?

Presenter: The use of modern technologies, the development of new varieties, agricultural mechanization and government support.

Host: Agricultural mushrooms?

Presenter: The mushroom is widely grown in the world and has been known since ancient to be very rich in protein, competing with meat. It also contains amino acids, vitamins A, B, C and D, and mineral salts such as phosphorus, potassium, magnesium, and iron. By containing Selenium, it promotes immunity in the body and also reduces blood sugar. Being rich in fiber helps and cures constipation and stomach pains. It is also anti-cancer and protects osteoporosis.

Its cycle of production does not exceed 3 -4 months, with 15-25 kilograms per square meter, while in the Netherlands, its production is about 50 kilograms.

Host: What is the importance of cultivating mushrooms in sustainable development?

Presenter: One of its most important features is its contribution to the process of sustainable development, as it is easy to produce and provides jobs and income for families and those working in its production. The importance of cultivating mushrooms is evident in its contribution to increasing national income. The average per square meter is 20-30 kilograms during the 3-month agricultural cycle. It is worth noting that production in the Netherlands exceeds 40 kilograms, due to the pursuit of exceptional service operations. There are several types of mushrooms. The oyster mushrooms are the easiest to cultivate, since they are produced using sawdust or straw. They do not require complex processes to prepare the growing environment.

The price of mushrooms of various kinds varies depending on the types and varieties. The price per ton of mushrooms is about \$10000.

Host: How do you grow mushrooms?

Presenter: The cultivation of mushrooms starts from mycelium mycelium, which is loaded with grains such as wheat or maize and is commercially known as mushroom seed. The cultivation environment, which varies according to the type of mushrooms, is prepared in both cases and must be sterile. The cultivation environment is mixed with the cultivation environment and packaged in bags or boxes for the first growth phase, which is the incubation in a dark and relatively cold place (15-20 degrees Celsius) and high humidity (80-90%). This phase lasts for about two weeks or more depending on the growth conditions.

Then the fruit phase begins in a place where lighting, temperatures (20-25 degrees Celsius), ventilation and high humidity.

Question: Are there any other crops or tips you want to direct to farmers and perhaps engineers and decision makers?

The farming or the greening of the desert through the cultivation of fodder crops such as the Atriplex and others. These are things that need to be studied and considered for the deteriorating situation in the Syrian desert. The possibility exists for the greening of desert and for the stability of sheep breeders of the ultra-hopping strain, which contribute to the creation of huge social changes resulting in the creation of infrastructure, hospitals, schools, houses and others

There's a serious decline in vegetation and we all have to work together to address this problem our natural resources and preserve the environment for future generations.

It is known that its production is 1 million tons on an area of 35 thousand hectares. It is a large quantity that exceeds the local consumption of 500 thousand tons, and it is supposed to export the remaining, or to manufacture it in the form of juices or nannies, and to benefit from the crusts in addition to benefiting from them in the pharmaceutical industry. Unfortunately, all of this is not possible to apply, given the many factors that impede the export process as well as manufacturing. I return here to talk about the economic importance of this agriculture and the extent to which the farmer benefits from its production. The answer is no. The citrus growers are still poor, as are all farmers in Syria, and not the olive growers.

What's the reason for this?

In Syria the so-called Halal Markets (where wholesale fruits and vegetables are sold) are subject to the influence of the owners of these markets, as the prices of the crops are determined by them. The market owners determine the prices of the crops, which results in heavy losses for the growers. In addition to weak domestic consumption, there are no export markets and no manufacturing.

The importance of alternative agriculture and the need to reflect on the diversity and diversity of agricultural products, particularly those that are increasingly in demand in world markets, are therefore highlighted again here. I would like to conclude by saying that it is necessary to move and to think about organic production methods and establish farms for organic products, as these are in increasingly high demand globally. In addition, organic products benefits humans, our health, and the environment.