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## Extension service activity in sheep and goat farms

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**SUMMARY** - Sheep and goat production for meat and milk is one of oldest agricultural branches. Approximately 2,050 families raise small ruminants. Sheep and goat farms are mainly located on Kibbutzim, collective moshav, and Arabic farms. Tnuva collect sheep milk from 111 breeders and goat's milk from another 30 herds. Producers demand for know-how and reveal high rates of its adoption and application. The Extension Service is a professional system providing technical advisory services in a wide array of domains. The Service collates and collects the results of research, analyses them and transfers them to the farmers, making sure that they are successfully implemented. Together with the technical field of Tnuva, the Services are working hard to improve the quality of milk. There is pressure to privatize the Extension Service because the idea is that breeders will have to support partially the cost.

**Key words:** Extension Service, milk quality, technology transfer, small ruminant.

**RESUME** - "L'activité des services de développement auprès des exploitations ovines et caprines". La production ovine et caprine pour la viande et le lait est l'une des branches agricoles les plus anciennes. Environ 2 050 familles élèvent des petits ruminants. Les exploitations ovines et caprines se situent principalement dans les Kibbutzim, les Moshav collectifs et les fermes arabes. Tnuva collecte le lait des brebis de 111 améliorateurs et le lait des chèvres de 30 troupeaux. Les producteurs font appel au savoir-faire et font preuve dans une très grande mesure de l'adoption et application de celui-ci. Le Service de Développement est un système professionnel qui fournit des services d'assistance technique dans un grand nombre de domaines. Ce service recueille et compare les résultats de recherches, les analyse et les transfère aux éleveurs, en s'assurant qu'ils soient mis en place avec succès. Avec la branche technique de Tnuva, ce service est en train de réaliser de grands efforts pour améliorer la qualité du lait. Une pression est exercée vers la privatisation du Service de Développement car l'idée est que les éleveurs devront en supporter partiellement le coût.

**Mots-clés :** Service de développement, qualité du lait, transfert de technologie, petit ruminant.

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### Introduction

Israel's agricultural sector is characterized by an intensive system of production stemming from the need to overcome the scarcity in natural resources, particularly water and arable land. The constant growth in agricultural production is due to the close cooperation between researchers, extensionists, farmers and agriculture-related industries. These four factors develop and apply new methods in all agricultural branches with government support. The result is modern agriculture in a country more than half of whose area is desert. Despite the decrease in the number of farmers, agriculture still plays a significant role in Israel's economy. Agriculture is of major national importance, particularly for outlying areas such as the Arava and the Jordan Valley, where agriculture provides the sole means of livelihood for almost the entire population.

More than half the area of the country is characterized by an arid and semi-arid climate. A large part of the remainder of the country is hilly and forested. A narrow strip along the coast and several inland valleys represent the country's only fertile areas.

Israel's climate enables it to produce vegetables, fruit and flowers during the winter off-season particularly for export markets in Europe. The country's varied climate and seasonal temperatures have stimulated the development of unique agro-technological solutions.

Much of Israel's agriculture is concentrated in three forms of settlements, which developed in the first two decades of this century: The kibbutz, the moshav and the moshava. These three forms of settlement were originally established by pioneers who regarded them as the fulfillment of their ideal of settling the land. The first two forms, the kibbutz and the moshav, particularly emphasized the ideal

of social equality, cooperation and mutual aid. The kibbutz and moshav today account for 79% of the country's fresh agricultural produce.

In addition to the Jewish agricultural sector, Arab farm villages are located mainly in the centre of the country and in the Galilee.

## **"Shaham" Extension Service in Israel**

The Extension Service is an integral part of the Ministry of Agriculture and Rural Development. High professionalism and a rapid pace of development are the main characteristics of agriculture in Israel.

Producers have steady demand for know-how and reveal high rates of its adoption and application.

This kind of agriculture requests agricultural extension and research services to capture both information and knowledge from local and foreign sources, to generate knowledge of its own and follow-up its application at farmer level.

An R&D system of this nature has to develop skills and capabilities in both production and farm management. The Extension Service is a professional system providing technical advisory services in a wide array of domains.

At the same time, the service is a highly specialized one in both crop and animal husbandry as well as in the auxiliary disciplines.

The Service collates and collects the results of research and experiments in every branch, analyses them, and transfers them to the farmers, making sure that they are successfully implemented. Over the years, the Extension Service has given advice and guidance to thousands of new immigrants, who have become farmers.

The strength of the service consists in its ability to tackle the complex and the inter-disciplinary and inter-institutional teams of non-conventional by forming Extension specialists and researchers. These teams can resolve crop production and farm management problems encountered by producers in addition to the provision of routine advice in the various agricultural branches.

The service generates applied knowledge with the help of field trials and observations and diffuses it relying on a series of information dissemination techniques.

At the Headquarters in Tel Aviv thirteen state level technical units are responsible for the branch-wise formulation of the technical policy, technical support to all regional extension specialists, advice to the various units of the Ministry of Agriculture, responsibility for ties with research, technology generation, and the operation of the field experimentation program.

In the regions, there are nine regional extension offices homing regional extension specialists. The specialization of the advisors is in line with the needs of the producers in the area. Through the nine regional offices, the Service maintains its continuous and intimate relationship with farmers, seeing to it that they get advisory services of relevance. The advisors identify at field level production and socio-economic constraints, and fine-tune technical solutions to local needs and conditions. The state-level technical units are flower crops, vegetable crops, deciduous and subtropical fruit crops, citrus, field crops, poultry, dairy and beef production, sheep and goats, bees, crop protection, irrigation and fertilization, farm machinery, farm management, landscape and gardening.

The Extension Service is financed by the government and farmer organizations in an 88:12 ratio. In the Extension Service, there are 315 employees.

## **Research and development (R&D)**

Today's agriculture is largely based on research and development. Modern agriculture faces challenges such as market competition, natural disasters, rising standards of living, environmental concerns and technological developments.

All these demand ongoing innovation and close cooperation with the scientific community. Israel is among the world leaders in allocation of financial resources to R&D. Some \$80 million is invested annually in R&D. Approximately 70%-75% of agricultural research is carried out by the Ministry of Agriculture's Agricultural research Organization (ARO), Volcani Centre. The ARO consists of seven professional research institutes and another four institutes that provide support. Research is also conducted at academic institutions.

Additional activities in applied research are carried out at the Regional R&D Centres. These were established in order to meet the unique climate, soil conditions and other needs of each particular region. The regional R&D centres, reflecting government policy for developing the nation's agriculture, are located mainly in peripheral areas in the north and south of the country, in the Jordan Valley, and in the Negev desert and the Arava.

Research is supported by the government and other public institutions contribute approximately \$81 million dollars annually to the ARO. Hundreds of academics are employed by the ARO, and many of them have brought Israel its internationally owned reputation in advanced agricultural production.

## Sheep and goats farms in Israel

Sheep and goats production for milk and meat is one of Israel's oldest agricultural branches. Approximately 2,050 families raise sheep and goats. More than half is Bedouin who live in the Negev Desert in the South, while the rest are evenly divided between Israeli Arabs in the north and Jewish farmers in various parts of the country.

Israeli Arabs own about 290,000 head of sheep and goats, mainly for local consumption. Jewish farmers own about 150,000 head, of which 40,000 are for milk production while the rest are for meat production.

Both milk and meat yields have increased due to intensive growing methods, breeding and improvement programs. The reproductive characteristics of sheep and goats have also been improved, while maintaining their positive qualities such as resistance to disease and easy acclimatization. The improved Awassi is a sheep breed developed for its milk production. Average annual milk production of improved Awassi is 500 litres per ewe.

The Assaf, cross between the improved Awassi and the German Friesian breed produces an average of 400 litres per head annually in kibbutz flocks and 320 litres in moshav. The Assaf sheep is most suitable for intensive farming, and it reaches sexual maturity early. The Assaf ewe has about three lambings every two years. Prolificacy is 1.6 and daily weight gains reach 400 grams.

The milk production of Saanen goats in Israel averages 700 litres per doe. Saanen goats milk is used for producing special cheese and pasteurized milk for local and export markets.

Sheep and goats farms are mainly located on Kibbutzim, collective moshav, Moshav, Agriculture schools and Arabic farms. Tnuva, collect sheep milk from 111 breeders and goat's milk from another 30 herds. An average moshav dairy herd consists of about 200-300 milking ewes and 100-200 milking does, while the average kibbutz sheep herd consists of more than 1,000 ewes.

Dairy farming is subjected to production quotas. The quotas are set by the Israel Dairy Board (Production and Marketing). According to law, no dairy farm may produce or market milk out of quota. This procedure helps to maintain the balance between supply and demand in the sector.

The Israel Dairy Board represents and coordinates between all the organs, which are active in the dairy sector, the government, dairy farmers, industry and consumers.

The "director" annually informs each producer of his quota set for that year.

Milk marketed in excess of the quota is accepted but is paid a price lower than the target price. In 1997, payment is 70% of the full target price. The quotas have decreased in the last five years, approximately 12% in sheep branch and about 27% in dairy goat's branch. Quotas are intended only for existing dairy sheep and goats breeders (no new breeders are allowed). New breeders interested

in raising dairy goats can produce without quota, because of the high demand for frozen curd for export to USA. During the last five years, the number of dairy farms decreased from 200 to 180. The department of sheep and goats and breeders' Association policy is to promote big farms with high production potential and decrease production cost.

The Government policy is that local production should supply the population's needs.

An increase in consumption, therefore, brings about an increase in quotas and *vice-versa*. With the implementation of the GATT accords the Israeli dairy industry is gearing it self for integration into international trade of dairy products in quality and special segments.

The Israeli industry must improve its efficiency to be accepted in the international market place.

## Sheep and goats department activity

From 1996, payment of milk has been operated on the basis of its bacteriological quality. Advisors of sheep and goats department and their colleagues from the dairy cows department and farm machinery and technology who are expert in milk quality and milking machines, together with the technical field of Tnuva, are working hard to improved the quality of sheep and goat milk. In March 1997, resulting in significant improvement. About 75% and 83% of sheep and goat milk reached the Excellent (up to 100,000 bacteria/ml) and "A" classification (101,000 to 250,000 bacteria/ml).

"Shaham" puts efforts on the following issue:

(i) Flattening the milk production curve. One of the promoted methods has been the use of melatonin and the light effect that are now widespread.

(ii) Increasing meat production by boosting prolificacy. Methods for nutrition flushing are now used in estrus synchronized animals and promote 0.3 lamb more/lambing.

(iii) Most of sheep and goat breeders utilize computerized feeding systems to determine the correct balance for milk yielding or dry animals emphasis in the gestation period. Advisors also help information of diets in feed centres and mills. In 1996, the senior-advisors of sheep and goat department edited a booklet in Nutrition Requirement for Sheep and goats based on expertise from Israel and from abroad. These norms help the breeders and other professionals to give adequate nutrition.

(iv) The Extension Service, ARD and Breeder's Association have participated in producing with Tadiran Framework the "EWE and ME" software. This software computerized data bank allowing users to trace the genealogy, milk yield and quality of every animal, as well as its fertility, reproduction and any other useful information for maintaining the standards of the sheep and goats industry.

(v) Improving cheese quality for local market and export. In collaboration with the breeder's Association a courses on milk processing for sheep and goats products in periodically convened. Advisors, researchers and technicians staff. This is especially useful for the 20 mini dairies implanted in dairy farms.

(vi) Editing "Hanoked" the Sheep Breeder's Association Journal (four/year).

(vii) The advisors of sheep and goats department give assistance to the Veterinary Service to evaluate sheep and goats that are slaughtered in the "Brucellosis-clean flocks" project.

## Methods used by advisors are as follow

- One-to-one advice – visits of Advisors on farmer's fields.
- Group activities – with selected groups of farmers.
- Training sessions to farmers.
- Pre-season, seasonal and season-end meetings.

- Publication of leaflets and data sheets.
- Publication of crop production and protection recommendation guides.
- Shooting and editing of videotapes for the use of the individual farmer in most agricultural branches.
- Preparation of television and radio programs for farmers.

In addition to advice the farmers, the advisors also take part in planning committee run by the Ministry, in international training courses in Israel and in the host Countries organized by CINADCO in deferent languages and Cary out field Experiments.

The department includes six advisors. Every year they plan the targets of the Department according to the Ministry policy. The advisor, helped by the Senior-advisor and head of the department select the goals that are relevant to his region or his farmers.

There is pressure to privatize The Extension Service. Due to financial cur backs, the Number of advisors is decreasing every year, this urges the Sheep and Goat Department to focus more on put of the regions, not to visit farmers without serious concern, and invest more time in the advising of groups instead of individuals. The emerging idea is that breeders will have to support partially the cost of individual advice.