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The National Workshop on

**Policies and Institutions to Enhance
Fodder and Feed Availability**

In Syria

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Workshop proceedings

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Introduction

Under the patronage of the Minister of Agriculture and Agrarian Reform, the International Center for Agricultural Research in the Dry Areas (ICARDA) and the National Agricultural Policy Center (NAPC) organized the National Workshop on “Policies and Institutions To Enhance Fodder and Feed Availability in Syria” on November 7, 2007 at the NAPC premises in Damascus.

The Workshop sought to discuss the most relevant issues concerning fodder and feed availability directly linked to the improvement of the livestock sector in Syria. The discussion covered the role of governmental and non-governmental institutions in fodder supply and the problems of fodder production and animal feedings in Syria. The Workshop program included two sessions: the first focused on the role of public establishments in charge of Syrian livestock production management and fodder production and provision, as well as highlighting the close interaction between these institutions and the related agricultural policies. The second session presented the role of the non-governmental and private establishments. Distinguished policy makers in the related fields and international experts delivered these presentations.

The Workshop was opened by welcoming statements of Dr. Nabi R. Mohammad, Deputy Minister of Agriculture and Agrarian Reform; Dr. Ahmad S. Ahmad, Deputy General Director and Director of the Production Systems Diversification and Sustainable Intensification Program in ICARDA; and Mr. Atieh El Hindi, Director of the NAPC.

An active debate following each session aimed at setting effective solutions for feed problems challenging the livestock sector in the country through the formulation of recommendations fundamental to the development of fodder resources and related Syrian agricultural policies.

Attendees of the Workshop included policy makers and public officers from related departments of the MAAR and public establishments, academics from various universities, and representatives of professional organizations and non-governmental bodies. (See the Workshop program in Annex 1 and the list of participants in Annex 2).

The proceedings of the Workshop are available at the NAPC website: www.napcsyr.org

Session 1

The Role of Governmental Bodies Working In Fodder Production and Provision in Syria

Introduction

Dr. Nabi R. Mohammad, Deputy Minister of Agriculture and Agrarian Reform, chaired the first session that included six presentations including: “The Role of Agricultural Extension” and overview of the project “Enhancing Fodder Use by Small-Scale Farmers”, “The Role of Public Establishments and Policies of Fodder Provision”, “The Role of the General Establishment of Fodder”, “Management of Livestock Production”, and “The Problems of Producing Fodder and Animals Feeding In Syria”.

Presentation 1

The Role of Agricultural Extension

Dr. Mohammad Abdullah, Director of the Agricultural Extension Department (AED) of the MAAR, presented this part giving a summary about the Department and its mission in expanding the fodder production technology.

The Department belongs to the Human Resources and Extension Administration of the MAAR. It is comprised of three divisions: extension planning, extension programs, and agricultural information. The total number of the extension units reached 1079 in 2007, in addition to 103 support units spread throughout the rural areas in the Syrian governorates.

Dr. Abdullah shed light on the responsibilities of the (AED), of which the most important are preparing, planning, monitoring, and appraising the related agricultural extension development programs in plant and livestock production; as well as transferring research results and new agricultural technology and methods to the farmers.

As he clarified, a participatory approach is adopted to identify the agricultural problems concerning the needs of farmers and crop problems. Thus, certain programs are prepared with the cooperation of farmers to examine the state of agricultural activities at the administrative levels of village, extension unit, and section; as well as to design the related extensional programs. Currently, 13 extension programs are applied; two of them are devoted to livestock production (sheep and cow).

The Project “Enhancing Livelihood State of Small-Scale Farmers and Livestock Breeders through Fodder Use”

Dr. Asamoua Larbi, the project Director, began by recalling the purposes of the Workshop, which were to introduce the project, review existing policies and institutions in Syria, and propose needed policies and/or modifications to enhance fodder and feed availability.

As he illustrated, the International Fund for Agricultural Development (IFAD) supports the project with the partnership of the Ministry of Agriculture (MAAR), the International Center for Agricultural Research in the Dry Areas (ICARDA); General Commission for Scientific Agricultural Research (GCSAR); non-governmental agencies (Farmers' Union, Agha Khan Foundation).

As he addressed, the project seeks to help small-scale farmers and livestock breeders improve fodder use efficiency to contribute to their living standards optimization. The project is being implemented in Ethiopia and Vietnam in addition to Syria, for which it started seven months ago and is active in four Syrian governorates: Aleppo, Homs, Hama, and Al-Hassakeh.

Dr. Larbi noted that implementing the project in Syria is due to the importance of the livestock sector, whereas the proportion of the rural population raising livestock reaches 40%. Moreover, the share of the sector contribution to rural household income is between 15 -100%.

As he clarified, the gap between the domestic production of fodder and the real requirements of the growing demand, which increased greatly in Syria during the last decade (1995-2005), is due to the rapid growth in sheep number. Accordingly, a fodder supply shortage emerged and greatly affected prices of dairy and meat products. Therefore, an urgent need was realized to investigate the role of policies and establishments operating in this field to help bridging the gap and guarantee the fodder supply.

As summarized by Dr. Larbi, the project was designed to achieve several key targets:

- Develop close partnerships with farmers and breeders to enhance forage use;
- Identify and analyze constraints and opportunities regarding production, marketing, and inputs, and to adopt new technologies and offer the required credits to help overcoming these constrains;
- Practice participatory evaluation of technologies and test new methods with partners and stakeholders concerning production, feeding, marketing, and machinery use;
- Build and enhance farmers and breeders' capacities by training them on applying relevant agricultural rotations; properly producing green feeds; making straw, hay and silage of plant residues with efficient methods; and marketing these products. In addition, the project aims to enhance their awareness about the accurate way for cattle fattening and the use of supplements to increase milk production. Put all together, this would improve rural household incomes and living standards; and lastly,
- Maintain close collaboration and interaction for information change with breeders, farmers, agricultural extensions, and research centers.

Presentation 2

The Role of Policies and Establishments in Fodder and Feed Availability

Mr. Haitham Al Ashkar, the NACP Deputy Director for Research, stressed the importance of the agricultural sector and its foremost role in the overall development of the Syrian economy. As he indicated, during recent years the sector's share in gross domestic product (GDP) accounted for 23-25%, and for 20% of total export value, as well as for 20% of job creation in the country.

He stated that the agricultural sector is highly dependent on the plant and animal sectors, but only slightly on the forestry and fish sectors. In 2005, animal production contributed significantly to overall agricultural production with 35% of the total value.

Mr. Al Ashkar put emphasis on the need for timely provision of the appropriate quantity of agricultural inputs to effectively meet production needs. As he confirmed, the key element of animal production expenses is the forage cost, which reaches up to 75% of the total cost of milk production and 90% of the total cost of bull fattening (Garry Cummins, 2000). Fodder and feed supply is, therefore, the cornerstone of the existence and development of animal production. In response to this fact, due governmental attention has been given to fodder and feed availability, whether locally produced or imported, through several agricultural policies.

In this respect, the lecturer highlighted the public bodies engaged in fodder provision. They consist of:

- The Ministry of Agriculture and Agrarian Reform, including specialized establishments (General Establishment for Seed Multiplication, and General Establishment for Fodder), and ministerial departments (Planning & Statistics, Agricultural Extension, Livestock Health, and Animal Production);
- The General Commission for Scientific Agricultural Research (GCSAR);
- The Agricultural Cooperative Bank (ACB) that provides in-kind and in-cash loans for several agricultural activities in conformity with the annual production plans of the MAAR;
- Other non-governmental organizations (General Farmers' Federation and Agricultural Chambers); and
- The private sector involved in fodder processing, producing, and business.

Mr. Al Ashkar moved to highlight the related Syrian agricultural policies classifying them into five main categories:

1. Production policies: including orientations of agricultural development strategy (2001-2010), the tenth Five-Year Plan, the annual production plan;
2. Marketing and pricing policies for internal and external business;
3. Research policies: mainly concerning the GCSAR and supervising the establishment of specialized research centers (for plant and animal production), training and

enabling researchers, as well as expanding programs of genetic improvement for domestic strains of animal.

4. Extension policies: focusing on capacity enhancement of technical staff and increasing the number of extension units that offer free consultation; the development of training centers; in addition to foundation of the agricultural high schools and intermediary academies in rural areas.
5. Fiscal policies: the Agricultural Cooperative Bank (ACB) is the only official source providing agricultural in-kind and in-cash loans in three types: short, medium, and long duration. In addition, some international development funds support small-scale projects for rural households particularly targeting rural women working in livestock breeding. The number of these projects reached to 25,000 (in 2007), with the average granted credit at 100,000 SP for each.
6. Processing and investment promotion policies: the government seeks to support private investment in fodder manufacturing. Several measures to facilitate this were included in Investment Law No 10 (1991) and its modification in Legislative Decree No 7 (2000), in addition to the New Investment Law and the Establishment of the Syrian Commission of Investment (Decrees No 8 and 9).

Eventually, in his view, to improve the productivity of the livestock sector and boost the living standards of small breeders, Mr. Al Ashkar called for adopting strategies for animal and plant production integration, encouraging cooperation among small breeders, as well as establishing factories for the processing of plant residues as forage.

Presentation 3

The Fodder between Planning and Execution

Mr. Hassan Katana, Director of the Planning and Statistics Department of the Agricultural Economy Affairs Administration of the MAAR, presented this lecture. As a start, he clarified that the title of his presentation is meant to point to inconsistency between planning and execution. In his view, despite the regular affirmation of the consecutive Five-Year Plans to secure fodder availability and to reach plant and animal integration and development, these targets could not be attained yet, and permanent feed shortages and insecurity still exist.

The lecturer presented statistical data about Syrian agricultural resources (land and water) in 2006 and 2007, noting that fodder and grazing crops are involved in the annual production plan and statistical abstract of the MAAR.

As he declared, regardless of the ambitions, the programs of the MAAR could not be fulfilled yet due to several planning matters. He also addressed the disparity between the productive plan and the actual irrigated areas, which are based on annual water resources availability. Furthermore, he pointed out the contradictions between agricultural plans and the actual agricultural status in Syria, though it is assumed to mirror the reality, as indicative planning has to be. In addition, there are still several unsolved problems such as difficulty of lentil harvesting and the inconsistency of crop productivity according to species, spatial allocation, and environmental conditions.

Then he moved to appraise the related strategies of the Ministry of Agriculture. As he addressed, these strategies mostly are irrelevant and do not fit the livestock requirements due to the following reasons:

1. Most of the cattle herds are raised far from regular farming lands, compounded by the high cost of transporting green fodder.
2. Other crops are more competitive, particularly the ones which enjoy government support for pricing and marketing, such as wheat and cotton.
3. Shortage of appropriate machinery, technology, and expertise for dealing and preparing wet (silage) or dried (straw) fodder. In addition, lack of breeder awareness regarding effective use of this kind of fodder in feeding; as well as regarding how to store, transport, or trade.
4. Farming land fragmentation limits the economies of scale and therefore in turn production volumes to be marketed or processed.
5. Limited cultivation of grazing crops, which occupied only a very small area representing even a smaller share in total value of crop production.

The lecturer, however, turned the light towards several supportive plans of the MAAR strategies that were designed to serve in livestock sector development:

- Pastures improvement plan for forage security: it includes promotion of pasture areas and Al Badia by planting 15 million pastoral trees distributed in grazing protectorates including the Al Taneff project (8 million trees over 22,525 hectares), and the Al Badia development project (7 million trees over 14,310 hectares).
- Veterinary care and vaccination services plan: provided by the Department of Livestock Health of the MAAR.

After that, he discussed the feeding balance in 2007 presenting the population and the production of livestock in 2006, though he put emphasis on the uncertainty of these numbers due to a variety of reasons. In his opinion, the national figures for livestock are not defined carefully, whereas the only figures we have are of the statistical census of 2001 that focused on occupancy not on owners. Moreover, due to fortification treatment the actual status of livestock growth registered 6% only.

Mr. Katana highlighted the main sources of fodder supply: the General Fodder Establishment provides 12.4% as raw fodder; the private sector provides 16.7% mainly as poultry fodder; the farmers produce the major portion of fodder supply 70.9% as fodder crops and plant residues.

As he noted, the above-mentioned fodder supply would satisfy the Syrian livestock sector, on the condition of effectively using farming residues and a rational use of barley, the major fodder crop in the country, but it is vulnerable to drought and rainfall rates. Tunisia, for example, is satisfied by its production of barley, though it is lower than Syrian production (140 tons).

He added that the available quantity of fodder that we already produce is sufficient, but its nutritional value is poor, since it is used as raw product. The estimated shortage of dry substance accounts for 1853 thousand tons, of calories 48379 million mega joule, and of protein 432 thousand tons. Accordingly, fodder quantities that should be imported to fulfill the sector requirement are totaled to approximately 2450 thousand tons of dry substance, 33259 million MJ of calories, and 322 thousand tons of protein.

Lastly, Mr. Katana summarized the major points of his lecture. He stated that the imported quantities of fodder, which do not cover the alimentary shortage, reach 17% of dry substance, 44% of calories, and 54% of protein. Namely, the nutritional deficiency is particularly due to shortage in calories and protein.

Another fact he pointed to is that 80% of the imported fodder is dedicated to the poultry sector. However, the imported quantities cover only the need of dry substance.

In this respect, he noted that the rapid increase in the livestock population exceeded the anticipated achievements of the many projects employed to act in natural resources protection, environmental conservation, steppe development, and Al Badia revival.

On the base of the information given, Mr. Katana presented recommendations to enhance fodder production. He gave priority to motivate the producers, farmers, to shift towards fodder farming and to acquire relevant machinery for collecting farming residues. In addition, he encouraged the establishment of specific firms capable to act in handling and marketing these products. Accordingly, he noted that it is quite important, afterwards, to establish factories in major production areas to produce integral packed fodder, based on proper combinations, and easy to transport and to use.

Presentation 4

The Role of the General Establishment of Fodder

Dr. Ahmad Al Sheikh, General Director of the Establishment of Fodder, presented this lecture. He noted that the establishment was founded in 1974 as one of the MAAR establishments. The key mission of the establishment is to provide a part of the livestock requirements of fodder at breeding areas as raw or balanced nutritious mixture, in order to attain better productivity with optimized quantity of fodder and cost. In addition, it also safely stores a significant portion of fodder to be distributed to public, private, and corporate sectors through its branches all over the country. Moreover, the establishment seeks to develop its performance, particularly in the field of fodder processing, and to increase the storage capacity and the number of storehouses.

He reviewed the status of Syrian livestock and the underlying growth of its population, which reached 24 million head according to 2005/2006 statistical data, with a growth rate of 8.6%. Fodder is a key factor of livestock growth and, therefore, it is the responsibility of the establishment to draw relevant policies to secure a sustainable supply of fodder, particularly in drought time.

He explained that the estimated fodder needs are carefully determined, amounting to 11,393,408 tons in 2005 and increasing to 12,309,685 tons in 2006. The establishment contribution to fodder supply totaled to 1,220,000 tons in 2006, while the private sector contribution was 2,231,362 tons. In addition, the executed import licenses given to farmers was 28% in 2006, but decreased to 23% in 2007. The execution reduction was caused by the increase in world prices, in addition to the limited capacity of the internal market that would be satisfied by approximately 2.5 million tons per year of the imported fodder. As he clarified, that number is representing the actual amount of fodder shortage in the country.

Dr. Al Sheikh classified the fodder produced in Syria into several types:

- A. Dry fodder grains: includes cereal, legumes, and oil seeds which are used in several forms (complete, grinded, squeezed, etc). This type of fodder is easy and economical to store, control, and transport. It includes wheat brand, cotton cake and peels, barley, and maize.
- B. Grazing fodder: consists of fresh planted grazing crops (Vetch, barley, maize, alfalfa, etc) or wild plants such as in Al Badia (shrubs, grass, pasture, etc). Most of them are unable to be stored or transported. The estimated annual supply of these fodders averaged between 2-6 million tons according to rainfall conditions.
- C. Crop dry residues: includes two types, the first of which is the hay or straw of wheat, barley, lentil, bean, dry dregs of sugar beet, etc, which accounted for 2 million tons and is served as winder materials. The second is the dry and rough residues of crops, such as trunk and tough leaf. However, to benefit effectively from these residues they must be treated biochemically. Usually they include cotton and maize trunk, and they accounted for 7 million tons. Most of it is burned or turned into ground, and therefore only 10% of it is used.

The lecturer turned to revise fodder sources in the country. As he clarified, the real fodder requirement of Syrian livestock is estimated at 12,309,685 tons per year. The Establishment of Fodder provides 1,220,000 tons, the private sector provides 2,231,362 tons, while the amount received from fodder crops and residues is about 5,407,000 tons. Thus, the available amount in the country is 8,858,323 tons. To cover the fodder deficiency, therefore, 2.5 million tons of fodder representing 18% of the total need should be imported. As he commented, we must pursue and reinforce producing locally the needed amounts.

The speaker then presented further details on operational actions taken by the fodder establishment:

1. Seeking to secure fodder availability, in terms of production depression in drought time. Thus, it increases the establishment capital from 500 million SP to 3.5 billion SP;
2. Ensuring strategic stock to cover the gap in potential droughts and crises;
3. Increasing the capacity of fodder storehouses by 20%, since the total storage capacity of the establishment usually fluctuates between 250 and 310 thousand tons. In addition to improving open storage conditions which leads to a decline in the annual costs from 400 SP to 60 SP per ton;
4. Producing fodder mixture, since the establishment currently manufactures in Tartous and Adraa 'ready fodder mixture' for milk cows totaling 500 thousand tons. Using such mixture would save 20% of the total needs when provided as raw fodder. Importantly, the establishment is looking for expanding such factories throughout the country, and for producing fodder mixture for other animals; and
5. The establishment also offers the service of drying maize by special drier machines.

To sum up, the speaker highlighted the future activities of the establishment, such as benefiting more from farming residues and encouraging the farmers and breeders to use it. In addition, it tends to use the residues from agro-food industries. In this regard, it tested the use of sugar beet dregs to make silage to feed cows and goats. Moreover, it endeavors to activate the economic cooperative agreements among the Arab countries related to fodder production.

Lastly, Dr. Al Sheikh stressed the necessity to institute units for transforming crop residues into simple nutritious substances to be used for livestock feeding, instead of increase fodder farming areas. With this suggestion, we would save and protect the limited underground water sources for future generations.

Presentation 5

The Role of the Livestock Production Department

Mr. Dib Dakouri, Director of the Department, began his presentation stressing the vital role played by the livestock sector as a major source of meat and milk supplies for people and of primary materials necessary for dairy, meat, leather, and other industries. Moreover, the sector is a main source of income for 11% of the total labor force in the country. He also noted that 35% of rural households raise livestock, which is considered their main source for food and income. Regularly, the contribution of animal production totaled 37% of gross agricultural production. Thus, developing livestock productivity is a key factor to reducing rural household poverty.

The speaker said that the specialized programs, implemented to support and develop the livestock sector through offering various services, especially veterinary care and genetic improvements, have successfully achieved their targets. However, even with the realization of considerable growth in the livestock population and production and the attainment of self-sufficiency of its products in the last decades in Syria, the total daily individual per capita consumption of animal products is lower than in high-income countries, with the exception of milk.

As he clarified, according to the MAAR structure, the Animal Production Department is responsible for livestock sector management in the country. Principally, it holds the mission of developing and improving livestock productivity and numbers. Actually, its role in animal fodder provision is restricted to identifying the nutritional requirements for each kind of livestock; in addition to defining, classifying, controlling, and analyzing the nutritional value of locally produced fodder on a regular basis; as well as identifying supplement specifications for the locally produced or the imported. Moreover, the Department analyzes and monitors these supplements for safety and quality assertion.

In addition, the Department is responsible for granting permission to import and export animals, supplements, and fodder; as well as to license fodder factories.

Mr. Dakouri pointed to the fodder balance deficiency in 2006 and to potential future procedures that would enable overcoming the rising demand for fodder. These procedures mostly focus on enhancing the use of farming residues (hay, straw) and improving their nutritious value by adding molasses and protein, in addition to benefiting from agro-food industry residues in livestock feeding. Moreover, increasing the grazing crops areas specially legumes that provide animals essentially with protein substances and vitamins.

To secure fodder availability, the speaker indicated several procedural actions seriously taken by the MAAR, particularly applied in critical seasons, such as distribution of available forage and allowing grazing in pastoral protectorates. In addition, the MAAR organizes regular workshops and training courses for breeders to enhance their

capabilities. In addition, it promotes several projects for development and regulation of Al Badia pastures such as Al Badia Development Project.

Mr. Dakouri then moved on to discuss fundamental problems confronting the animal production sector. They are represented by the lack of related research and studies, poor productivity of the animal unit, and fodder shortages. Furthermore, he added some constraints negatively impact the sector, from his point of view, such as the traditional breeding systems, small livestock acquisitions, traditional processing and marketing for animal products, and natural pastures deterioration.

To overcome these problems, the lecturer presented the following procedures to be taken:

1. The integration of plant and animal production;
2. The execution of relevant research to examine improved strains and adopt breeds of high productivity;
3. Promotion of animal unit productivity by heredity improvement process, e.g. for Awassi sheep, and to distribute the improved races to breeders;
4. Enhancement of green and dry fodder production;
5. Development and regulation of Al Badia steppe and fostering livestock breeding in marginal lands;
6. Development of rural manufacturing for animal products and fostering the establishment of factories and marketing cooperatives;
7. Supporting the foundation of specific unions, cooperatives, and networks for animal breeders in order to regulate, support and develop the profession of animal breeding; and
8. Promotion of more investments and projects in animal breeding and fodder production.

Presentation 6

The Problem of Fodder Production and Animal Alimentation in Syria

This lecture was presented by Dr. Yasin Al Masri, Director of Animal Production Research of the General Commission for Scientific Agricultural Research (GCASR) in Syria.

Dr. Al Masri called for fodder availability as a fundamental factor affecting the development of animal production in Syria and most of the Arab and developing countries. As he highlighted, this matter is becoming more difficult due to the increased demand of animal production which raises the prices and makes livestock a direct source of income for many farmers, even small farmers, supporting their livelihood needs. Thus, considerable growth seen in livestock numbers in the last decades is coupled with a parallel growth in feed requirements. However, the actual increase in fodder resources did not match the increase in livestock numbers, but remains lower or hardly enough to meet the total demand.

As in other developing countries, Syria increasingly depends on imports to satisfy the requirements of poultry and cattle feed. That, in fact, has emerged as a fluctuating and heavy economic burden from one year to another in the country.

In addition, the absence of clear strategies, particularly concerning fodder production, to develop the livestock sector in Syria and other Arab countries, constantly generates a significant deficiency in fodder production in the region. Thus, the region has become an essential market for firms and countries producing fodder and hence a significant source for high returns. In his opinion, the lecturer assured that the resulting gains originally would be employed in improving and developing fodder production in the region, particularly in countries which have the basic requisites of production. Unlike the current situation, that would help these countries attain self-sufficiency or even shift to be fodder exporters themselves.

In this regard, Dr. Al Masri presented the status of Syrian livestock sector in 2005 including cows, sheep, goats, and buffalo. He mentioned also the species, strains, numbers, and production of milk and meat, in addition to poultry numbers and production.

Then he turned the light toward basic problems challenging the livestock sector in Syria:

- There is no clear strategy to improve the sector and the several administrative bodies acting in livestock affairs and development projects. That has possibly negatively influenced the sector.
- There has been deterioration of the Al Badia steppe region, so it is losing its potential to satisfy the growing number of sheep.
- There are inadequate sources of fodder to meet the requirements of the sector.
- The sector is dominated by traditional sheep breeding based on a system of seasonal movement between the Syrian steppe, and cow breeding mostly applied as a marginal activity in the farms.
- There is a lack of breeders' networks/ cooperatives concerned with breeding original domestic strains of livestock, which need to be preserved and improved.
- Most processing and marketing of animal products are done in traditional ways.
- There is difficulty implementing research findings and relevant extension concerning animal production.
- There is weak national and foreign investment in animal production projects.

In regards to the above information, the lecturer mentioned the following suggestions to develop the sector:

- Adopting a clear strategy to improve the sector by protecting domestic genetic varieties and to ensure the introduction requirements such as fodder, medication, and vaccinations as aiming to secure the supply of animal products in adequate quantity and good quality; in addition to attaining a sustainable level of human and natural resources development;
- Practicing and supporting the participatory technique, which is considered a key factor of the development process;
- Fostering national and foreign investment in integrated projects;

- Activating new structures in the MAAR regarding administration of animal affairs;
- Coordinating the efforts of national, regional, and international research bodies concerned with animal development;
- Supporting Al Badia development projects and developing traditional systems of breeding and production;
- Activating the role of agricultural extension; and
- Supporting and improving the practices of animal health laboratories.

The speaker gave some insights about the shortage in fodder production referring to the latest study carried out by the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD) in 2005. The study indicated that the percentage of self-sufficiency of available fodder resources totaled 95% of dry material, 65% of caloric intake, and 63% of protein. Therefore, the shortage of these elements is 5%, 35%, and 37%, respectively. That is to say, the available quantity of fodder might be enough, but the quality is not good.

He also addressed several factors increase the shortage of available fodder sources and increase also fodder deficiency. These factors include the rapid growth in the livestock population and potential for genetic improvement; the constant drought and rain scarcity; oscillation of fodder prices generally tending towards increasing levels; and the existence of a fodder monopoly by a few importers, whereas import permission is given only to them during certain periods. Moreover, it is also important to note the poor contribution of breeders in producing the needed fodder for their animals. Several driving factors are in the forefront of the last issue, as he explained:

- Low potential of the fund for breeders and farmers;
- Some of the breeders don't have land and/or water resources for farming activities;
- Lack of experience such that breeders and farmers do not effectively exploit the land and water to produce fodder and to enhance the nutritional value of plant residues; as well as not using efficient ways of feeding; and
- Avoidance of the participatory approach with breeders and small farmers and misunderstanding of an integrated project approach.

Importantly, the lecturer added that the shortage in fodder leads to undernourishment, which negatively affects the livestock sector. He pointed out the poor quality of the available fodder supply in the country referring to a lack of dry substance (kg), calories (mega joule), and protein (g). He explained this matter as a lack of information about balanced nourishment; ways of preparing, processing, and conserving livestock fodder; and the needed ratio of winder and concentrated fodders.

Concerning fodder availability and undernourishment matters, the speaker listed the most influential and potential solutions to tackle and overcome these problems:

1. Issuing a general strategic framework, agreed upon by the Ministries of Economy and Agriculture, and the State Planning Board, to drawn effective policies and plans concerning fodder supply;
2. Building up useful participatory infrastructures through development projects such as instituting small units for fodder processing and enhancing its nutritional value; in addition to producing fodder mixture and integrated feed. Moreover, establishing small factories to manufacture, pack, and market animal products under a special brand;

3. Providing relevant credits through the Agricultural Cooperative Bank for integrated and participatory projects conducted by breeders and farmers;
4. Activating the role of the agricultural extension units and scientific research units in transferring technical advancements;
5. Constantly supporting development projects of the Al Badia steppe, and rationalizing the use of it; and
6. Promoting more Arab and national investments in fodder production and marketing.

The speaker then spoke about the methods and ways to optimize usage of fodder resources. As he confirmed, there are thousands of research papers and special experiences documented which have been applied to improve the value of plant residues all over the world. The essential techniques used are adding urea and ammonia, steppe rehabilitation by planting fodder crops resistant to salinity, and preparing integrated fodder, which is the best choice for future animal feeding. It is dependent on plant residues, so it is useful for countries having a shortage in fodder sources. He added, integrated fodder is processed in two ways: wet as silage, and dry as it is or compressed.

To sum up, Dr. Al Masri highlighted the importance of conducting pioneer projects for transferring potential technical methods to farmers and breeders. Moreover, he emphasized the need to establish corporate infrastructures by the development projects to foster and enhance livestock breeders and farmers and to follow through on project activities.

Session 2

The Role of Non-Governmental Bodies in Fodder and Feed Availability

Introduction

Dr. Ahmad S. Ahmad, Deputy General Director of ICARDA chaired this session, which included two presentations: “Fodder and the Role of Nongovernmental Bodies”, and “The Agricultural Status in Syria”.

Presentation 1

Fodder and the Role of Non-Governmental Bodies

This lecture was presented by Mr. Omar Al Shalet, Chief of the Damascus Agricultural Chamber. He remarked that Syria has recently witnessed wild agricultural development. The level of development reached, however, was not equivalent between plant and animal production, and the former gets more attention. As he described, the operators in farming are mostly traders rather than farmers, particularly as they look for faster gains by orienting more profitable crops such as wheat and cotton, which are certainly more profitable than livestock breeding.

He stressed that the livestock population is hardly enough to satisfy the demand of its products, though it has significantly increased in Syria in recent years. Therefore, appropriate attention should be given to this sector to develop and improve livestock production.

Furthermore, he addressed the positive correlation between rainfall and fodder availability and the development of the sheep population in the country. As he explained, the reasons for shifting towards cow breeding in Syria are derived from several factors. First, the sheep numbers usually increase in good rainfall years, but decline in poor and drought ones. In addition, potential development of the goat population is constricted in the country. Therefore, the rational option was to focus more on cow breeding, particularly milking cows. This choice, therefore, requires the development of technical advice that is mainly provided by the governmental bodies to cow breeders.

Moreover, he pointed out the matter of securing the cow fodder supply, which remains unsolved. Usually, cow breeders depend on a well-balanced fodder mixture prepared by the establishment of fodder, as well as on what is provided by private sector traders, but most of them are not aware of the right components and ratios.

Moving to the discussion of cow breeding difficulties, the lecturer clarified that although the cow population saw a substantial increase in the last decade (growing from 554139 in 1996 to 746574 in 2005), the numbers fluctuated significantly due to several factors:

1. Frequently, limited numbers of cows are raised in the suburbs of cities, while farmers and investors do not consider cow-breeding projects as an income generator like other agricultural and economic projects;

2. High prices of fodder are not affordable for breeders, in addition to high veterinary medical costs;
3. Animal breeds which have a high level of milk productivity are not available, and milk prices are low;
4. Lack of experience for cow breeding and milk conservation;
5. Absence of cow insurance to compensate breeders for loss of animals; and
6. Insufficient fodder supply provided by the government, and the poor quality of fodder provided by the private sector, since it is not controlled.

Concerning the above-mentioned aspects, non-governmental bodies were involved in helping to improve the state of the cow sector. In this respect, the lecturer talked about the contribution of the 'Federation of the Syrian Chambers of Agriculture'. The key objectives of the federation are to participate in the agricultural development process and help the member breeders of the Chambers. Therefore, the federation established the "Livestock Services Fund" devoted to milk cow insurance. The fund aims to provide a combination of timely integrated services in a proper form and efficient amount for the participating cow breeders. The combination involved credential services, production inputs, and agricultural extension services. In addition, it provides training for cow breeders in relevant fields and helps finding marketing channels for milk production. As well as the fund remunerates the breeders in case of a sudden death of their cows. An insurance committee consists of veterinary doctors and agricultural engineers specialized in animal production supervises the fund.

As he declared, the fund is an endeavor to participate in the growth of the livestock sector and to help participating members of the agricultural chambers improve and stabilize their production and business. In addition, it is an attempt to attract the attention of policy makers and operators in this field to adopt and promote agricultural insurance and to enhance the involvement of private operators in this sector.

Lastly, Mr. Al Shalet proffered recommendations useful for the improvement of the livestock sector:

- Carrying out studies to develop traditional breeding and feed resources,
- Considering plant and animal production integration,
- Persuading small farmers to add their estimated work value to production expenses,
- Adopting systems of investment credits for large-scale agricultural projects such as cow breeding, and concentrated and green fodder production,
- Improving the marketing strategy for milk surpluses, instead of reliance on wholesale traders,
- Issuing an insurance system which covers environmental and natural disasters, and
- Fostering non-governmental institutions that can establish projects that help in the provision of fodder with fair prices and establish factories for dairy products.

Presentation 2

The Agricultural Status in Syria

Mr. Fayez Darwish, Director of the Animal Production Office in the General Federation of Farmers, delivered this presentation. He opened by pointing out that the dominant share of Syrian agriculture is rain fed farming, making up 70% of the cultivable land, with cereals covering 78% of this portion. Agricultural production, therefore, varies from year to year depending on annual rainfall rate and distribution.

Syria has a total disinvested land of 362 thousand hectares, equal to 6% of the cultivable land. While steppe and pasture area totaling 8290 thousand hectares covering 44.8% of the total area. In fact, this area is considered the major free source of sheep fodder.

As he mentioned, the country is divided into five agro-climatic zones. The main criterion used for this zoning is the level of rainfall:

1. Agro-Climatic Zone 1: average rainfall of more than 350 mm, covering an area of 270 thousand hectares representing 14.6% of total area. It is the major area for producing wheat, legumes and summer crops.
2. Agro-Climatic Zone 2: average rainfall between 250-350 mm, covering an area of 247 thousand hectares representing 13.3% of the total area, with the main crops being barley, wheat, legumes and some summer crops.
3. Agro-Climatic Zone 3: average rainfall in this zone is >250 mm, covering an area of 1302 thousand hectares representing 7.1% of the total area, the main crops are barley with some legumes.
4. Agro-Climatic Zone 4: average rainfall is between 200-250 mm, with an area of 1830 thousand hectares representing 9.9% of the total area, and it is only used for barley or as steppe.
5. Agro-Climatic Zone 5: the average rainfall is <200 mm, with an area of 10209 thousand hectares representing 55.1% of the total area. It consists of Al Badia and natural steppe, which is the major grassland for sheep, particularly in good rainfall years.

The speaker moved on to talk about the status of the Syrian livestock sector. The sector is represented by sheep, cow, goat, and smaller shares of buffalo, camel, horse, and poultry. He added that the positive trend in livestock numbers lasted until 2000 before declining in 2001. After that, however, it significantly recovered in numbers and production. Remarkably, the number of Arabian horses in the country is continuously increasing, having significant attention of breeders, which responded to the growing world demand for this breed.

As for poultry production, it increased considerably in the last decade as a result of the significant expansion of an intensive production system, in respond to the high demand for poultry products (meat and egg). However, in 2004 the poultry production seriously falls off due to the decreased consumption of poultry products, as a reaction to bird flu, resulting in a great decline in the poultry sector.

As he remarked, the production of egg, poultry meat, red meat, and milk increased during the period 1997-2006. Cow accounts for 65-70% of the total milk production and for 20% of red meat. While the sheep share of red meat reached to 75% of the total and

for 25% of overall production of milk. The goat share represented only 3% of the total for both meat and milk. He noted that the animal production sector is improving Syria's trade balance, since it is a considerable source for foreign currency, and it is absorbing a big share of labor.

Turning to fodder resources in Syria, the lecturer mentioned the following:

- Syrian natural grazing land is located mostly in Al-Badia in Zone 5, with a total area of 8290 thousand hectares. It has been affected strongly by degradation during the last decades due to overgrazing and overexploitation. Currently, several attempts are being done to stop the degradation and rehabilitate natural pastures.
- Crop harvest residues act as a resource for dry substance, which accounted for 1 ton per hectare from wheat residues, 0.7 tons per hectare from barley, 0.62 tons per hectare from legumes, and 0.9 tons per hectare from cotton. In addition, 60% came from sugar beet plantations as green residues also used as fodder.
- Green fodder also involves alfalfa, sorghum, clover, flowering ser, and barley crops.
- Grain crops include barley (main crop), maize and legume (bitter vetch, rambling vetch).
- Agro-food industry residues resulted from squeezing oils, grain grind, sugar, starch, wine, beer, and vegetable preservation. The sugar beet wet dregs usually amounted to 22-30% of the processed crop. This kind of wet residue is rapidly spoiled due to its humidity and the sugar contained, thus it is usually dried by the sun and sold through public auctions. While other agro-food residues (vegetable preservation, biscuit), are usually sold directly to breeders or traders.
- Imported feed and fodder includes maize, soya cake, grazing barley, ground fish, supplements, poultry concentrate, and wheat bran. In 2005, imported fodder reached the highest amount at 2.8 million tons. Imported fodder is highly priced due to monopoly and lack of governmental control, e.g. in this year (2007) the price of 1 kg of barley is 15 sp.

As the speaker remarked, the fodder establishment keeps dealing with only 1 million tons of fodder per year, though, the livestock population has greatly increased with registered rates of growth in 2001-2005 amounting to 154% for sheep and 130% for cow.

The lecturer stressed that the farmers' federation is looking for a greater role to be played by the establishment of fodder to stabilize the prices, provide the required amounts, and secure a national reserve of fodder.

Mr. Darwish continued by highlighting the most effective constraints challenging the fodder supply and the implementation of modern technical methods:

1. Inadequate domestic fodder supply contrasting with the rapid growth of the livestock sector;
2. Small individual possession of livestock, which makes the use of modern technology inconvenient and raises the associated costs;
3. Absence of investment projects which adopt modern techniques for preparing several types of fodder. In addition, instability of development projects concerned with new technologies, and the fact that the activities of any project are ended by the termination of the funding source;

4. The high prices of livestock, especially for cows, which makes breeders unwilling to take the risk of adopting unsecured methods;
5. Difficulty in accessing fodder, agricultural inputs, and new technologies, as they are not involved in the fund policy of the Agricultural Cooperative Bank (ACB) which also has stopped granting fodder purchasing credits since 2000; and the
6. Absence of effective state supervision of small factories producing fodder mixtures, such that most of them cheat by adding cheap filler materials to the mixture.

Finally, Mr. Darwish proffered fundamental proposals to foster adoption of modern techniques. They include:

- Improvement of ready fodder and feed specifications produced by the establishment of fodder to be more convenient (more grinded, as capsules);
- Fostering projects which invest in nutritional and qualitative improvement of plant residues, as well as of relevant inputs (urea, molasses); in addition to involving such projects by funds granted by the (ACB); moreover, the ACB should resume granting fodder purchasing credits;
- Promoting the shift towards a condensate breeding system for cow and sheep and supporting such patterns of breeding; and
- Tightening the supervision on factories producing fodder mixtures, in particular small and unlicensed workshops, to insure fodder quality.

Discussion

- The participants raised several debatable issues after the first session. They did note the disparity of statistical data used in the presentations that showed estimates of Syria's livestock population, the requirements of fodder, and the alimentary shortage. Another set of questions and comments called for further clarification of the agricultural strategy concerning the animal production sector; the economic disagreement of the production plan for the farmers and improper productivity for farming zones; the change in farming systems to irrigated crops and fruit trees in most territories; pasture management difficulties; fodder shortages and high prices; and absence of state support for fodder production.

Moreover, the discussants addressed the need to revise the current agricultural policies to be modified in light of the need to pledge and guarantee the actual amount of forage. They also questioned executive and operative solutions for the determinant problems and the role of IFAD project in this concern.

In response, the concerned authorities explained the efforts exerted by the state to constantly secure fodder and feed. However, they also insisted on looking for proper methods to improve fodder quality.

Targeting the increase in fodder supply, the MAAR is working on expanding the number and areas of grazing protectorates in the country. The current cooperation project between ICARDA and the MAAR would be a basic core to bring about other projects in the country, helping maintain the sustainability of the project's activities.

As for the agricultural strategy, it is theoretically good but difficult to be implemented and practically executed. As for the intensification of maize cultivation, it is difficult and not worthwhile to increase the area of this crop because it is a heavy consumer of water.

The responses also stressed the importance of policies, planning, and support in comparison to the role of agricultural advisors, since they cannot direct the farmers' attention to disfavor certain species. Taking this into consideration, the technical advisers should continuously be trained and granted the basic work requisites such as transportation and adequate motivation. Moreover, the GCSAR has proper combination and development methods to prepare fodder mixtures, so it can be transferred to breeders through the extension advisers.

Dr. Larbi, Director of the cooperative project, addressed that the project is directed toward small-scale breeders who do not have big farms or a large number of animals.

He added the project has been implemented recently, starting operations seven months ago. Several national and regional meetings with related authorities and farmers and breeders were held to identify the needed inputs, requirements of small producers, and the production techniques, in addition to recognizing suitable ways to offer the needed help and consultation to enable successful outcomes for all stakeholders.

The speaker said that the real problem the project is likely to face is how to access the farmers. The project therefore is seeking to build up good relationships with farmers cooperatives. He suggested maybe granting simple instruments through the international bank to facilitate the work of farmers and breeders and to gain their loyalty.

Along the same line, Dr. Larbi assured that despite the small volume of the project, it is working in the view of overcoming the basic problems affecting small farmers to improve

their living standards, with particular help for rural women. Moreover, the project grants funds for master's degrees and PhDs.

- The second session followed with debate centered on the role of the farmers federation and the Agricultural Cooperative Bank in enhancing fodder availability and the requested policies to improve fodder quality.

It was declared that the General Establishment of Fodder is partly responsible for fodder availability. It was stressed that it is necessary for including the farmers' federation to act effectively in fodder provision, since it is fiscally able to fund and support such needs. In addition, it was pointed out that the Agricultural Cooperative Bank is still providing in-kind loans to licensed poultry projects.

Ending the discussion, the NAPC Director addressed the difficulty to come out with immediate solutions for fodder and animal feed problems in the country through this workshop, which is intended more to present a complete vision, give due attention and foster a positive nationwide dialogue about this issue.

Annex (1) Workshop Schedule

Wednesday 7/11/2007

Introductory Session		10.00
Mr. Atieh El Hindi	NAPC Statement	10.00
Dr. Ahmad S. Ahmad	ICARDA Statement	10.15
Dr. N. R. Mohamed	MAAR Statement	10.30
Break		10.45
First Session: The Governmental Bodies Working In Fodder Production And Provision In Syria Session Chairman: Dr. N. R. Mohamed		11.00
Dr. M. Abdullah	The Role of the Extension Department	11.00
Dr. A. Larbi	Overview & Purposes of the Project	11.15
Mr. Haitham al Ashkar	Correlation Between the Institutions & Agricultural Policies in Fodder Provision	11.30
Mr. Hassan Katana	The Role of the Planning Department - MAAR	11.45
Dr. Ahmad Al Sheikh	The Role of the Establishment of Fodder	12.00
Mr. Deib Dakouri	Livestock Production Management	12.15
Break		12.30
Second Session: The Role of Non-Governmental Bodies in Fodder and Feed Availability Session Chairman: Dr. Ahmad S. Ahmad		
Mr. Omar Al Shalet	Fodder and the Role of Non-Governmental Bodies	12.45
Mr. Fayez Darwish	The Agricultural Status & Fodder Insurance	13.00
Discussion		13.15
Lunch		14.00

Annex (2) List of Participants

Arab Region Center for Advisory Studies & Agricultural Development (ARCADS)

Bakour, Yahia, General Director
Abufakher, Shibli, Consultant

Arab Centre for Studies on Arid and Dry Lands (ACSAD)

Karjoli, M. Ali, Consultant

Agricultural Cooperative Bank

Altaleb, Riad, Deputy of Credit
Saadat, Zedan, Director of Credits
Yazagi, Elias, Director of Training and Qualification Center

Baraka Company

Genebert, Read, General Director

Damascus Peasant Federation

Hamdan, Marowan, Chief of Animal Production Office

Damascus Agricultural Chamber

Al-Shalet, Omar, Chamber Chief

Food & Agriculture Organization (FAO)

- FAO Office in Syria

Kayal, Hamed, Chief of Programmes' Division
Molawi, Bassem, Programmes' Division

- Project GCP/SYR/006/ITA

Al-Matar, Asma, Translator, and Liaison Assistant
Alloush, Shahed, Secretary
Al-Saleh, Reem, Administrative Assistant
Nabti, D. Munir, Consultant
Monotti, Chiara, FAO Junior Consultant
Perri, Pirro-Tomaso, Chief Technical Adviser
Keilani, Nasouh, Computer Technician

General Commission for Agricultural Scientific Research (GCASR)

Al-Masri, Yasin, Director of Animal Production Research

General Establishment of Fodder

Al-Shekh, Ahmad, General Director
Mirza, Abdalrahim, Chief of Protection Division
Swedan, Yassin, Retired

General Peasant Federation

Al-Shaar, Muwafac, Director of Agricultural Affairs
Abedalali, Ali, Chief of Agricultural Affairs Office
Darwish, Fayez, Director of Animal Production

Ministry of Agriculture & Agrarian Reform

Mohammad, Nabi Rashid, Deputy Minister
Al-Abood, Afrae, Deputy Minister's Office

- Agricultural Economy and Investment Department

Sewar, Hassan, Chief of the Costs Study

- Agricultural Extension Department

Al-Abdulah, Mohammad, Director
Alshawa, Haytham, Chief of Extensional Publications Circuit
Othman, Saleh, Extension Units

- Agricultural Marketing Department

Al-Rifayi, Abedalhadi, Chief of Information Circuit
Alkhabase, M. Nazir, Chief of Quality & Marketing Structures
Ismail, Rahaf, Chief of Prices Circuit

- Albadih Development Project

Mustafa, Khidur, Deputy Director

- Planning and Statistics Department

Katana, M. Hassan, Director

Farhood, Abedulah, Chief of the Natural Resources Survey Project

Abu Kalam, Sabah, Deputy Chief

- Journalistic Office

Amer, Hana, Journalist

- Agricultural Affairs Department

Al-Dahak, M. Ali, Plant Production Directory

Al-Abkae, Maan, Chief of Pastoral Crops Division

Dakouri, M Dib, Director of Animal Production Directory

- **National Agricultural Policy Center (NAPC)**

El Hindi, Atieh, NAPC Director

Al Ashkar, Haitham

Al-Khatib, Wafica

Al Hamwi, Bashir

Atieh, Basima

Babbili, Mahmoud

Baghasa, Hajar

Dahash, Yahia

Haj Shareef, Mahmoud

Hamza, Raid
Husni, Wafica
Karkout, Me'dad
Melli, Nadia
Nehme, Nawal
Rahal, Maamoun
Saadi, Usama
Salameh, Arowa
Subh, Samira
Wardeh, Najlaa

International Center for Agricultural Research in the Dry Areas (ICARDA)

Amigbito, Cofee, Economist
Larbi, Asamoah, Pasture & Forage Production Specialist
Mazied, Ahmad, Agro-Economist

Syrian Television

Subeh, Ghassan, Editor