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KOSOVO

CLUSTER AND BUSINESS SUPPORT PROJECT

Report on Kosovo Poultry Sector

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Submitted to:
USAID/Kosovo
Cognizant Technical Officer: Timothy Hammann

Prepared by:
Dr. Jeff Firman

Submitted by:
Chemonics International Inc.

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**Summary of Dr. Jeff Firman's Recommendations for the Kosovo Poultry Sector
Poultry Specialist STTA (January 3-23, 2005)
Kosovo Cluster and Business Support (KCBS) Project**

Dr. Firman found the overall poultry industry little changed from his last consultancy (July, 2004) which was jointly conducted for the former Kosovo Business Support (KBS) Project and the Kosovo Feed for Poultry Project (KFPP). However, recent removal of Custom Duties and VAT on numerous additional agricultural inputs, including imported complete feed rations, presents new possibilities for increasing egg and possibly broiler production in the near term. Of particular interest to many in the Kosovar poultry sector is the recent foreign investment by a Tunisian company (Hasan Poultry) in a broiler operation. TUSHA Poultry (domestic producer) produced a small number of birds in 2004. If this activity is successful it is expected to have a domino effect that will result in significant additional domestic broiler production capacity. However, Hasan will require considerable technical assistance from KCBS and its partners, since apparently they have little or no hands-on experience in broiler production. Failure of this investment could have negative repercussions for growth of broiler production in Kosovo in the near term.

Dr. Firman's Scope of Work (SOW) contained numerous activities because it laid the groundwork for the KCBS' support to the poultry sector over the life of the project. Most of the activities were addressed, but many will require follow-up and additional technical support over the course of KCBS. For those activities that could not be addressed at this particular time, they will be addressed as they materialize.

The following summary contains findings and recommendations by task in the order presented in Dr. Firman's original SOW.

➤ FEEDMILLS

- Task--Review recent relevant documents related to the animal feed situation in Kosovo including the UNMIK/PSIG removal of VAT on agricultural imports including animal feed.
- *Finding(s)/Recommendation(s)—Tax change included removal of taxes (exception is 5% tax on any product passing through Serbia) on imported complete feed mixes and some feed components (e.g. soybean meal). Other feed components (vitamins, premixes, mineral sources) being imported by Kosovar feed millers to make complete feeds using domestic raw materials (primarily corn) are not exempt from these taxes. This action has resulted in a competitive advantage for feedmills operating outside of Kosovo. At today's prices it is cheaper to import complete feeds than to produce feed domestically. If the government is interested in support Kosovo's feed milling industry, the tax situation will have to be rethought.*

- Task--Assess the impact of tax exemptions on imported feeds on various components of the poultry/livestock cluster including feed millers, crop producers, and poultry producers.
- *Finding(s)/Recommendation(s)—The initial assessment indicates that since the removal of taxation on imported complete feeds, Kosovo’s egg producers have gone from 25% to 90% imported rations due to lower costs. Imported feed is coming primarily from larger feed producers in Serbia who because of size may also be benefiting from economies of scales for raw material inputs. Therefore, the Kosovo feed industry has downsized tremendously from what it was 6 months ago and there has been some loss of jobs.*

- Task--Based on the above review and assessment make recommendations to the KCBS Business Support Group and SHPUK on an advocacy strategy to address any negative impacts of the tax exemption for imported animal feed.
- *Finding(s)/Recommendation(s)—Based on above findings Dr. Firman recommended that the KCBS Business Support Group and SHPUK seek exemptions on all imported feedstuffs, so that poultry/egg producers could mix their own feed or import mixed/complete rations depending on which was most cost effective. The recommendation was also made that SHPUK push for such reforms as a condition for including table eggs in the free trade agreement which is currently under negotiation.*

- Task--Visit farm producers and agro-processors to assess the existing crop and animal feed situation, and the impact on local poultry producers.
- *Finding(s)/Recommendation(s)—Local production of soybean (the desired protein source for poultry feed) is basically non-existent. Maize/Corn production does occur, but is used primarily on-farm by the producer. On average approximately 10% of domestic corn production is available for purchase by poultry producers. There are few drying facilities available and no centralized sales location where large scale drying could occur. Wheat production is primarily used by the flour industry but is available for the poultry industry if maize prices are high. Dr. Firman recommends that based on farm size and low labor costs production of fruits/vegetables and ornamentals might be more attractive to farmers.*

- Task--Using current and historical prices of existing and potential feed ingredients, build on previous efforts to formulate a less expensive feed formulation for poultry producers and feed millers, given the primary breed of laying hen in Kosovo.
- *Finding(s)/Recommendation(s)—Least cost feed formulations should be routinely done for feed producers in Kosovo. Since most of the feed is currently being imported this is less of an issue than it was 6 months ago. However, it may be possible for custom mixes to be made and for least*

cost feed formulations to be used regardless of company producing the feed. Diets based on current premixes in use and rations available are being formulated by Dr. Firman and will be provided. These should be updated routinely as prices change and will be updated on each visit by the poultry consultant.

- Task--Work with KCBS staff and SHPUK leadership to ensure information is available for reformulating least cost feed formulations in a timely manner as raw material availability fluctuates.
- *Finding(s)/Recommendation(s)—A basic feed formulation software package was provided to KCBS livestock staff on CD. Using the (protected) software, diets can be reformulated based on prices changes for inputs.*
- Task--Tour several large commercial layer operations and feed mills in Kosovo and review previous investments/changes made under the USAID funded SFS activities and make recommendations for additional improvements in better milling, reducing cost, increasing throughput, improving storage techniques, and correctly identifying input and output quality.
- *Finding(s)/Recommendation(s)—Since there is little feed being manufactured in Kosovo at the present time due to the duty free import of complete feed, there has been virtually no investment made in improving feed mixing facilities in the past 6 months. The consultant did recommend a) that imported feed should be sampled and tested to ensure feed was being mixed to specifications and b) that a laboratory capable of doing such analyses should be established at either the university or at SHPUK.*
- Task--Make recommendations to the Kosovo feedmill industry to improve purchasing power and milling efficiency in order to lower feed costs, thus making the industry more competitive.
- *Finding(s)/Recommendations—For purchasing imported complete feeds and to ensure quality and lowest possible cost, purchasers should insist on routine testing, consider specifying feed formulations based on knowledge of price of raw materials and components, consider bulk purchases and tenders for bid . In situations where diets are mixed in Kosovo, the same considerations apply. In addition, bids for components (e.g. grain, vitamins) must contain specifications (e.g. % moisture, % protein) for each component.*
- Task-- Work with Peja Institute to identify skills and/or equipment required to test the nutritional content of imported and locally produced feeds and feed components.
- *Finding(s)/Recommendation(s)—No visits were possible so this task will have to be ascertained during a follow-up consultancy.*

- Task--Work with KCBS staff and SHPUK leadership to begin implementation of a training program to develop in-country capability for preparing least cost feed formulations.
- *Finding(s)/Recommendation(s)—As noted a CD for reformulating feed formulations based on prices for various rations/components was provided to KCBS staff. However, to develop in-country capability for understanding and advanced methods in feed formulation requires extensive training and is normally presented as an advance level college course over the period of one semester. The consultant will maintain close contact and be available to assist KCBS staff throughout the project.*
- Task--Develop a 4 year plan for specific KCBS interventions at the feed mill level that will help them produce a better product for the Kosovo poultry farmers and help the feed mills increase their profitability.
- *Finding(s)/Recommendation(s)-Strategic plan attached.*
- Task--Develop a detailed year one action plan for the feed mill industry.
- *Finding(s)/Recommendation(s)--See strategic plan.*

➤ POULTRY PRODUCERS

- Task--Continue dissemination of information geared to educating poultry producers to the benefits of proper poultry feed formulations.
- *Finding(s)/Recommendation(s)—Information on proper feed formulations was provided at the wrap-up seminar at the end of the consultancy and will also be included in any future seminars of this nature. The consultant also agreed to provide articles as requested in the publication of a newsletter is pursued.*
- Task--Provide specific recommendations for additional interventions by KCBS with SHPUK that can increase individual poultry operations profitability.
- *Finding(s)/Recommendation(s)—In most developing countries, few owners/operators in the poultry industry have sufficient knowledge of their cost structures to know where inefficiencies exist. In order for Kosovar poultry producers to become competitive they must institute a “cost accounting” system that will allow them to determine expenses at every level (cost center) of their operation (feed, labor, fixed costs, vaccinations, etc.) and to react to changes in prices for each of those cost centers. This system will take time to build, but once built it allows the owner to easily compare cost effectiveness of various possibilities.*
- Task--Analyze group purchasing of feed grain by various SHPUK members and make recommendations as how to identify and maximize future opportunities.
- *Finding(s)/Recommendation(s)—In the overall scheme of joint purchases, Kosovo’s poultry industry requirement for 5000 mt of soybean meal and*

10,000 mt of maize/corn are relatively small. Also, there is reluctance by producers to commit to a purchase price as the short-term price structures may change leaving them with commitments to purchase at a higher price. The consultant suggested other avenues to consider might be sourcing product from Europe.

- Task--Using current and historical prices of existing and potential feed ingredients continue to formulate a less expensive feed formulation for poultry producers and feed millers (previously noted).
- *Finding(s)/Recommendation(s)—See previous recommendations for least cost feed formulation under Feed Mills.*

- Task--Conduct a follow-up basic nutrition seminar and implement the first of several training seminars designed to provide information on efficiency of a feed formulation considering energy/carbohydrate source, available amino acids, minerals, vitamins, etc. Discuss how to use alternative ingredients and lower costs, while still meeting minimum nutrient requirements.
- *Finding(s)/Recommendation(s)—This activity will begin with the consultant's next STTA.*

- Task--Review present disease prevention activities and work with KCBS to design and begin to implement a Kosovo wide disease prevention program for the poultry industry.
- *Finding(s)/Recommendation(s)—Current disease prevention is lacking. While birds/layers are maintained in cages, there is much less chance for disease outbreaks/epidemics. However, the chances for disease will increase with broiler production as there is more contact with manure which harbors various disease causing organisms. Producers should implement and follow carefully the disease prevention programs presented previously by the consultant. A guidesheet on disease prevention is attached for translation and distribution. Once the information is distributed, follow-up visits by the responsible government agency should occur.*

- Task--Discuss with KCBS staff possibilities for expansion of broiler production and work with KCBS staff to develop an SOW for an updated broiler production assessment.
- *Finding(s)/Recommendation(s)—The possibility for broiler production is greatly enhanced as a result of the lower costs for imported complete feeds and what appears to be an increase in price for imported broiler meat. Only a small intermittent supply of domestically grown broilers (TUSHA Poultry) is currently available in Pristina. Kosovo's maximum total market for broiler meat is estimated at 20 million bird, so 250-500,000 fresh whole birds per year seems reasonable and achievable. Consultant feels market could easily absorb 5000 domestically produced*

broilers /week, possibly even up to 800,000/year. Beyond that number, cost controls and marketing will determine feasibility.

- Task--Review with the Kosovo Trust Agency the status of privatization of state owned enterprise facilities currently being leased for layer and broiler production.
- *Finding(s)/Recommendation(s)—Privatization has not occurred. Current rents average 0.41Euros(\$0.50)/bird/year with improvements made to such facilities being additional. Expected purchasing price for such facilities at the time of privatization are not known, but there is strong possibility that improvements made to date may exceed the purchasing price. Unclear if any of the producers will have sufficient resources to purchase current facilities. It is also unclear how current producers will recoup investments if they are not successful bidders for their current rental property.*
- Task--Develop a 4 year plan for specific KCBS interventions at the poultry producer level that will help them produce poultry products at a more competitive level.
- *Finding(s)/Recommendation(s)--Strategic plan attached*
- Task--Develop a detailed year one action plan for the poultry producer industry.
- *Finding(s)/Recommendation(s)—See strategic plan.*

➤ HATCHERIES

- Task--Review UNMIK/PSIG removal of VAT on imported poultry chicks and assess impact on domestic industry.
- *Finding(s)/Recommendation(s)-- The removal of the VAT on imported chicks has had little impact on chick purchases. The cost of imported broiler chicks remains quite high at over 0.25 Euros (\$.30), twice the cost in the USA. The cost of production of chicks in Kosovo estimated at around 0.16 Euros (\$.20). Lowering costs to this level would make a substantial difference in the cost per kg of actual broiler produced.*
- Task--Based on review make recommendations to KCBS Business Support Group for advocacy strategy.
- *Finding(s)/Recommendation(s)—Due to the significant difference in the cost of imported and domestic broiler chick, the consultant recommended that KCBS support a sustainable broiler breeder and hatchery program. The program would be initially designed to sufficiently supply chicks for the current small fresh bird market, but allow for expansion if market demand is sufficient and breeders can be competitive.*

- Task--Conduct additional client training in hatchery management, fertilized egg care and purchasing of fertilized eggs.
- *Finding(s)/Recommendations—There are currently no eggs in incubators, but this training will be incorporated into future KCBS training.*

- Task--Update recommendations on incubation and hatching.
- *Finding(s)/Recommendation(s)—See above finding. Technical support for incubation and hatching will begin when eggs are obtained.*

- Task--Provide recommendations in color and feather sexing that will decrease the mistakes as well as costs.
- *Finding(s)/Recommendation(s)—Poultry strains were produced some 40 years ago that differ in feathering rate based on a sex-linked gene. Feather sexing of poultry has several advantages including: it is an easily transferable skill that is highly accurate, rapid and requires less labor. Colour sexing has resulted in significant cost savings for the industry and is based on plumage (colour and markings). Males are predominantly white and females are brown.*

- Task--Recommend a vaccination program for day old chicks.
- *Finding(s)/Recommendation(s)—A sustained vaccination program is one of the major components to maintaining a healthy high performance flock, because the disease status in any given location is constantly evolving. Globally, the poultry industry is seeing the evolution of more virulent strains of pathogens. There are a number of factors to consider in determining a vaccination program including; age and type of birds, diseases present on the farm and in the region, the virulence and serotype of the disease agents and age at which birds are susceptible. The vaccination program for broilers begins at the hatchery with vaccines for Marek's Disease Virus (MDV) and infectious bronchitis virus (IBV). MDV can be administered in ovo at 18 days of incubation or by day of age injection. IBV is delivered via spray at day of age. There are a number of live MDV and IBV vaccines available and choices should be made based on past challenges and what worked best. Producers also usually vaccinate against infectious bursal disease (IBD) and in some areas it is important to vaccinate against Newcastle Disease(NCD) and coccidiosis. IBD vaccine is usually delivered via drinking water. Coccidiosis is primarily controlled through feed additive anti-coccidials, but vaccines are gaining greater acceptance even though there is an inherent risk due to the live nature of the vaccine. The vaccination program/strategy for layer pullets is very different since immunity/disease protection must be provided for an extended period of time—the life of the flock. While MDV vaccines should be administered at the hatchery, typical vaccination for IBV and NCD contains 3-4 live vaccinations spread out over 3 week intervals followed by a killed vaccine 6 weeks after the last live vaccine. The vaccines are best applied as sprays beginning with a coarse spray and*

mild vaccine dosage for younger birds and progressively increasing the fineness of the spray and the strength of vaccine as the birds age. Farm owners with a history of IBV may want to consider spraying with a live booster in the laying facility every 6-8 weeks in addition to administering a killed vaccine. Two live IBD vaccinations via drinking water are recommended during early pullet growth. Depending on specific challenges, the farm owner may need to include vaccines for fowl pox (FP), avian encephalomyelitis (AE) and infectious laryngotracheitis (ILT). Vaccination programs for broiler/breeders seek to protect the birds for the life of the flock and to provide high uniform titers to protect progeny (chicks) during early stages of life. IBV and NCD programs are similar to those for layer/pullets. A series of live IBV and NCD vaccines are administered prior to administration of a killed vaccine. Most of the broiler breeder industry has adopted a strategy of hyper-immunizing the breeders for IBD so to provide high uniform maternal antibodies which will be passed to the chicks. In addition to vaccines utilized for layers/pullets (noted above), broiler breeders are also vaccinated for viral arthritis/tenosynovitis (Reovirus) and chicken anemia virus (CAV). Vaccines should be: administer during times of less stress, e.g. when you are already handling the birds (moving, trimming beaks), according to manufacturers' direction and for water-based vaccines, drinking water should be removed the night before to improve the efficacy. Vaccines do not guarantee 100% protection and should be combined with good management, nutrition and biosecurity to ensure a healthy, productive flock.

- Task--Encourage changes in marketing and sales strategies to promote changes in day-old chick purchase habits within Kosovo.
- *Finding(s)/Recommendation(s)—The first step towards a marketing/sales strategy will be establishment of breeder industry for producing broilers. This should reduce the cost from the current 0.24 Euros for imported chicks and should support sustainability of the hatchery program. A breeder operation for egg laying pullets is less feasible at this point in time.*
- Task--Incubation and hatching is the point/task of the consultant providing recommendations in pre-warming and cooling temperature and time as well as hatching time.
- *Finding(s)/Recommendation(s)—Eggs produced from breeders should be collected daily and stored in egg flats at 18°C. Holding time should not exceed one week because hatchability of eggs decreases with longer storage. If longer storage is unavoidable, holding temperatures should be reduced to 16°C. Eggs to be placed in the incubator should be warmed to room temperature (22°C) for 18-24 hours prior to placement.*

- Task--Identify the size of the market per month as well as the average flock size needed at a single hatch.
- *Finding(s)/Recommendation(s)*—*Based on current functional hatchery facilities, approximately 19,200 eggs can be placed each week. It is recommended that current facilities are put into production prior to placing breeders and prior to purchasing equipment for additional hatchery facilities.*
- Task--Based on market and flock size, work with hatchery owners to design plan to place breeder chicks at periodic intervals (bi-monthly for example) to meet sales demand and even out production of eggs.
- *Finding(s)/Recommendation(s)*—*Plan developed by consultant to obtain approximate number of eggs required for periodic replacement is attached. Note that it very difficult to place birds such that an even number of eggs are produced at all times.*
- Task--Assess transport equipment requirements for hatched chicks.
- *Currently, given the small number of chicks and relatively short distances any enclosed van that can be ventilated and heated can be used. If the industry expands significantly or if greater distances are involved, then a commercial vehicle specific for the activity could be purchased.*
- Task--Work with Business Support Group to identify legal issues with border crossings.
- *Finding(s)/Recommendation(s)*—*Importation of chicks requires a license issued from the Kosovo Veterinary Services indicating chicks are healthy. To obtain the license, the documents are forwarded to the country of origin for certification. This has created problems with chicks being imported from or through Serbia (e.g. chicks from Hungary). Since Serbia does not recognize Kosovo as an independent entity, it is difficult to get certification required to obtain the license. In addition, there has been outbreaks of Newcastle Disease in several countries that can/could supply chicks. The only long-term resolution is to establish a breeder industry in Kosovo.*

➤ POULTRY COMPOSTING

- Task--Review current poultry waste management methods and make recommendations for improvement.
- *Finding(s)/Recommendation(s)*—*Dead birds are buried and manure is spread. Composting of dead birds is a possible alternative and would be less of a threat to groundwater.*
- Task--Continue dissemination of information on alternative uses for poultry waste (manure and deceased birds) such as composting.
- *Finding(s)/Recommendation(s)*—*Value of compost varies from approximately 100-200 Euros/ton. Poultry compost (litter/manure and*

dead birds) used as a soil amendment and for mushroom production. Potential compost production from Kosovo's current poultry industry is estimated at 20,000 tons/yr or +2 million Euros if market could be developed. Consultant recommended industry pursue analysis of the potential market for compost. If analysis proves positive, consultant recommends each company determine a market and start composting. Information on composting provided at seminar presented at end of consultancy and is available in hard copy if needed.

- Task--Identify facilities and equipment needed for establishing a poultry composting business.
- *Finding(s)/Recommendation(s)—Facilities can vary from simplistic to elaborate. Typically, the basic composter is a 3-sided building with a concrete floor. The litter/manure and dead birds are layered together with a carbon (C) source such as straw or wood shavings (exception is broiler litter, where C source may not be required since litter contains shaving) . on the concrete floor. In cases where manure is very dry, water is added. After the pile begins composting and heats up (75°C), the associated bacteria are killed and nutrients are released. The compost is turned several times and reheated each time resulting in a sterile product that contains significant nutrients. Grinding to smaller particle size may be required to enhance marketability.*
- Task--Provide training in on-farm poultry composting.
- *Finding(s)/Recommendation(s)—A training session on composting was conducted in July, 2004 under the former KFPP. Presentation and information is available if requested.*

➤ FEEDGRAIN GROWERS

- Task--With KCBS discuss with MAFRD 2005 plans for soybean field demonstrations.
- *Finding(s)/Recommendation(s)—At the end of Januar 2005, MAFRD had no definite plans for soybean field trials. We understand that discussions are underway based on correspondence received from KCBS.*
- Task--Discuss with KCBS need for study on feasibility of soybean production in Kosovo. Assist KCBS in designing SOW for such activity if needed.
- *Finding(s)/Recommendation(s)—At this time there appears to be limited/little interest in soybean production. Consultant felt based on small size of farms, other crops offer a greater return per ha compared to typical row crop.*
- Task--Identify alternative methods for processing soybeans for use in poultry and livestock feeds.

- *Finding(s)/Recommendation(s)—Once promotion of the domestic production of soybeans is resolved, treatment issues can be fairly easily and quickly addressed. Treatment involves either roasting or extruding. Both are simple mechanically and relatively low cost. There is a privately owned extruder in Kosovo which was use to process soybeans under the former KFPP. Maximum capacity for extrusion is 10 tons/day or 3600 tons/yr.*
- Task--Continue to disseminate information on utilization of winter wheat in poultry and livestock feed.
- *Finding(s)/Recommendation(s)—As noted previously, wheat is primarily converted to flour and is not normally substituted for corn in poultry rations unless corn prices are extremely high. If wheat is used, enzymes to break down the non-starch polysacchrides found in higher quantity in poor quality wheat is required along with yellow pigment required for yellow yolks or yellow skinned broilers. The yellow pigment (xanthophylls) is present in yellow corn and alfalfa meal.*
- Task--Provide recommendations for use of available by-products (e.g. wheat millings) in the poultry and broiler feed industry.
- *Finding(s)/Recommendation(s)—Sunflower meal and wheat milling by-products (e.g. wheat middlings) can be used in poultry rations/feed formulations. Sunflower meal is low in energy and may have threonine availability issues, but otherwise works well in poultry feeds. Wheat middlings can compose up to 20% of the diet, but should be analyzed for energy content.*

Attachment 1

Guidelines for Prevention of Poultry Disease

Dr. Jeffrey Firman
Department of Animal Sciences
University of Missouri
USA

An adequate disease prevention program is essential to a profitable commercial poultry operation. Chronic diseases can reduce efficiency and increase costs. Although a disease prevention program may not show immediate returns on the investment, it will be profitable in the long term.

Sources of Disease

Humans, whether as visitors, neighbors or farm workers, can be a major source of disease transmission. Carriers can include employees who work on several poultry farms and equipment that moves between farms.

Poultry brought to the farm can carry infectious diseases. Day-old chicks or poults, pet birds, replacement pullets, cull- or sickpen birds, or birds of different ages or species are all possible sources of contamination. Wild birds may carry and transmit diseases to commercial poultry flocks. Certain diseases, such as salmonella and coliforms, may be transmitted from the dam to the offspring through the egg.

Poor sanitation also can cause disease problems. Once a site is contaminated, carryover from previously infected flocks may become a reoccurring problem.

Disease outbreaks are influenced by the general condition of the flock. Conditions caused by **poor management** can reduce the flock's resistance to infection.

Disease Prevention

Proper security measures can greatly reduce the chance of disease outbreaks. Use disinfectant foot baths or wear plastic foot-coverings when entering buildings. Change foot baths often to keep them effective. If you use equipment for more than one flock, wash and disinfect it before introducing another flock or using it in another building.

Only bring in poultry from disease-free flocks. Secure your facilities from wild birds. Don't keep pet birds on the premises, and avoid contact with other flocks.

Practice "all in, all out" with flocks whenever possible. Thorough cleaning and disinfecting between flocks will help reduce outbreaks. Include a period of down time (two weeks minimum) in your flock schedule. Removal of built-up litter may be necessary if a disease outbreak has occurred.

To prevent spread of disease, control rodents and insects, keep buildings clean and dispose of dead birds. Clean and disinfect the facilities in the following manner:

- Remove all birds from the building. Clean out the old feed and remove all movable equipment.
- Hose the ceilings and walls before removing litter. Dispose of litter as far from the house as possible.
- Clean equipment and all items to be reused and repair building if needed.
- Wash the house thoroughly with a high-pressure wash to remove all manure deposits.
- Disinfect with a water-soluble compound such as quaternary ammonia, phenol compound, iodophor, coal-tar or a chlorine disinfectant.
- Apply an insecticide approved for poultry use.
- Replace the litter and return equipment.
- Lock the building and let it stand empty for two to four weeks.

Maintain proper management techniques that do not stress the birds. Good ventilation, dry litter and proper temperatures will provide conditions conducive to good health.

Follow an approved vaccination program.

References

- Schwartz, L.D., 1977. *Poultry Health Handbook*, College of Agriculture, Pennsylvania State University.
- Hofstad, M.S., 1984. *Diseases of Poultry*, Iowa State University Press.

Attachment 2: Hatchery plan for breeder chicks for layer (egg) production.

Below is a plan for obtaining the approximate number of eggs that are needed with periodic placement of flocks so that there is time to buildup sales as more chicks become available. Please note that it very difficult to place birds such that an even number of eggs are produced at all times.

Months	Flock 1	Flock 2	Flock 3	Flock 4	Flock 5	Flock 6	Total eggs/week*
1	2000	0	0	0	0	0	2000
2	5000	0	0	0	0	0	5000
3	5000	2000	0	0	0	0	7000
4	5000	5000	0	0	0	0	10000
5	5000	5000	2000	0	0	0	12000
6	5000	5000	5000	0	0	0	15000
7	4000	5000	5000	2000	0	0	16000
8	4000	5000	5000	5000	0	0	19000
9	4000	4000	5000	5000	2000	0	20000
10	3000	4000	5000	5000	5000	0	22000
11	3000	4000	4000	5000	5000	2000	23000
12	3000	3000	4000	5000	5000	5000	25000
13	0	3000	4000	4000	5000	5000	21000
14	2000	3000	3000	4000	5000	5000	22000
15	5000	0	3000	4000	4000	5000	21000

* Assumes placement of 1000 pullets at 2 month intervals. First eggs would be set about 6 months after pullets were placed and eggs 3 wks after that time.

Attachment 3

Strategic Plan for the Kosovo Poultry Industry

Jeff Firman, PhD

KCBS—IFDC STTA (January 3-23, 2005)

Introduction:

■ There are basically 2 ways to make money in the poultry industry. The first of these is to increase the price paid for a product and the second is to decrease the cost of production. From a historical perspective, for the first ~25 years of the modern poultry industry, poultry producers worked primarily on reducing the cost of production. This was primarily a commodity market focus with relatively little marketing of the product produced. This has been quite typical of agriculture world wide in that quantity of production has been the most basic measure of productivity. This basically meant increasing scale, exerting greater control, moving profit to one point and other methods to carefully reduce costs. This methodology was tremendously successful in terms of controlling costs and the end result has been that producing a pound of chicken has cost the same for over 40 years when inflation would indicate that a significant cost increase should have occurred during this time. The resulting structure of the industry has been termed vertical and horizontal integration. The basic structure has worked quite well and is being copied by other industries worldwide at various levels. The industry while still concerned about cost structure basically ran out of efficiencies in the 1980's and the focus shifted away from cost cutting to increasing price paid for the product through value additions. While adding value to a poultry product began in the 1960's with the marketing of a small broiler as a Cornish Hen, it really took over the industry in the 1980's. This began with the enhanced value of breast meat versus leg-thigh meat and has continued with a variety of value additions such as the further processing, advertising, shift towards fresh, cutup, fully-cooked, fast-food market seen today worldwide but particularly in the US. While the market dynamics have changed, the commodity mentality must remain in place. A number of lessons can be learned from their experiences in the US. Cost cutting must occur first to reduce the price of the raw material that will eventually be used for value addition. The efficiency of a company gives potential for profit in multiple ways including sales as a commodity and through value addition. An example of how important this is is the failure of Louis Rich Turkeys. At one point about 20 years ago Louis Rich was the largest turkey company in the US. As a company, they lost their focus on commodity cost (turkeys) and costs became too high as a result of this lack of focus. They were not competitive on base product (meat) price and thus adding value to a protein that started out at a significantly higher price than competitors was problematic. They went from the largest to smallest in a very short time.

Strategic Plan- Overview/Goals

- Provide support for current industry
- Goals- Increase size of the layer industry 20%
- Goals- Start and grow broiler industry
- Goals- Start and grow breeder industry

How will we do this?

- 1. Look at each aspect of the industry for efficiencies and possibilities
- Look for constraints to efficiency
- Problem solving to remove constraints

- 2. Try to add value to the products produced
- Focus on simple things with low cost
- Examples would be egg cleaning and grading

Approach

- Help with problem solving currently
- Build individual businesses
- Build institutions that help business and support infrastructure
 - SHPUK
 - Veterinary Services (KVFA)
 - University (PEJA)
 - Ministry of Agriculture (MAFRD)
- Goal is to have a self-sufficient industry within 4 years

Breakdown of Areas

- Vertical structure is that which feeds into the next portion such as breeders to eggs to chicks
- Horizontal are the industries associated such as feed milling

Segments of the industry

- Information – Information is the key to success in the modern economy. Information keeps companies up to date with all other aspects of the business and allows for efficiencies to occur and opportunities to be taken.
- Research- This is an aspect that should be conducted elsewhere due to the high cost. However, an organization must be put into place whereby research results are transmitted to the industry routinely.
- Housing- Ventilation and equipment systems, building new versus renting or purchase of privatized housing are all issues that will need to be addressed as the industry grows.
- Technical support- Currently this is primarily being done through KCBS (Iir Zenelag, consultants). At the moment, this is probably sufficient, but will need to be addressed in the future. I would recommend that Mr. Zenelag be offered every opportunity for further training through acting as a translator for study tours and travel to local trade shows, etc
- Lab services- There are not any services currently for measuring feedstuffs, microbial contamination of carcasses, etc. The need for these services will need to be addressed in the future.
- Veterinary services – The current government ministry is dealing with food safety issues and border controls. The only access to veterinarians for the industry is probably through sellers of vaccines such as Fauna.

- Diagnostics Laboratory – The setting up of a diagnostics lab to monitor and diagnose basic diseases is proposed (see Attachment 4).
- Government – Liaison with the government is a necessity and must be done through SHPUK or its representatives
- Supplier network – A basic supplier network needs to be put in place to reduce the inordinate amount of time spent by management obtaining basic supplies to run their businesses.
- Communications Structure – A communication structure needs to be put in place to assure that everyone is current with the situation in Kosovo as well as any developments elsewhere that may have an impact. Please see recommendations for SHPUK below.
- Organizations – Please see SHPUK recommendations as well as those made for other institutions.
- Software/computing – Software and computing is the key to information being the basis for decision-making. Items such as Excel templates should be made available through KCBS.
- Infrastructure-Roads, utilities, rail, etc – Every effort should be made to make the government understand that the infrastructure needs of the poultry industry are reflective of the infrastructure needs of the country and investments in infrastructure will help overall economic development.
- Business services- Help with financial services such as business plans can be done through KCBS. Other areas such as benchmarking and cost accounting can be taught initially followed by takeover by individual businesses if appropriate.
- Feed milling – This is a problematic area at the moment as the tax structure set up recently for imported feed and feedstuffs does not favor milling within Kosovo. Thus the importance of this area has diminished greatly for the project. If these regulations should change, this area may be of greater significance.
- Importation controls – This is an area of deep concern for the industry as it has the potential to ruin the industry before it gets started. SHPUK should continue to monitor this with help from KCBS.
- Marketing groups – Several groups are working together to market commodity eggs. Eventually more effort should be put into market analysis, market development, advertising and adding value to products.

The System

An organized system must all work to get an industry that functions fluidly. As we have seen, one problem can stop the entire system. As an example: the current inability (in January, 2005) to obtain broiler chicks has basically put the start of the broiler industry on hold. Each time something like this occurs it can functionally stop the industry and leave one open to competition and market loss.

Action Plan- General

- Get broiler industry started
 - 1st year goal 250,000 assisted
- Get broiler parent stock placed
 - 1000 hens every other month
- Get Veterinary Diagnostics Laboratory started

- Continue progress of SPHUK
- Continue educational efforts on cost reduction and adding value
- Increase layer numbers by 20%

Specifics- Broilers

- Assist with obtaining chicks
- Technical support for production
- Assist with processing, storage, transport
- Marketing assistance- market analysis, price discovery, marketing plan, advertising & promotion

Specifics-Broiler Parent stock

- Assist with planning
- Assist with obtaining parent stock chicks
- Technical support for growing and production
- Teach artificial insemination
- Work with incubation once eggs are ready
- Vaccination programs
- Scheduling and delivery

Specifics-Veterinary Diagnostics Lab Startup

- Proposal for equipment and startup supply purchase prepared
- Training of scientists
- Technical assistance in laboratory methods
- Bring veterinarians into field
- Self-sustaining through small fees for service

Specifics-SPHUK

- Improve/coordinate lobbying efforts
- Taxes- address border tax, feed tax issues
- Subsidies?
- Government services (veterinary, university, laboratory)
- Regulations affecting industry (food safety, labeling, etc)
- Privatization
- Education of government officials
- Identify and support friends of the industry
- Information transfer/education through sponsor of seminar/training sessions each time consultants are in Kosovo. Not just for management but for farm workers also. Topics to address should be specified by industry
- Newsletter to include: Educational articles, Summaries of new technology, Summaries of research, Industry news (government regulations, etc), SPHUK news, Other
- Industry services such as supplier lists (feed components, chicks, equipment, parts, etc), aid in obtaining supplies, business support (financial, business plans, communications hub, accounting)
- Other possibilities for SPHUK would include (feed formulations, technical support person, Lobbyist/paid manager, etc)

- Central location for the poultry industry
- SPHUK can be what you want it to be

Suggestions for other areas for future work

■ Accounting needed for cost control. This is referred to as cost accounting and can be related to benchmarking services for comparison. It is useful for decision-making, calculations for return-on-investment, etc. It is recommended that each larger company hire a technology person-English speaker with computer skills and internet access. Cost accounting can be done with a spreadsheet built for your business and can start very simply with a breakdown of chick, feed and other costs. It is then expanded with experience. It should include the ability to do 'what-if' statements (what if feed costs are reduced 10%?). It is also best to break business into "cost centers" which would include feed, pullet rearing, etc.- basically any aspect of the business that can be bought or sold would be considered as a cost center. Must use specific data rather than generalizations for it to be effective (ie. Actual receipts). This is used to track overall costs and control them. Breakdown can include actual costs, % of costs and cost/unit produced. These costs can be compared to those of a benchmark such as Agristats. If lower than benchmark, OK- if higher look for ways to reduce costs.

What else can we do?

- Work together to obtain products
- Set up distributor for products
- Standardize product needs- example: premixes- standardize and purchase together for better prices
- Employee training
- Standard operating Procedures

Final thoughts

- Look carefully at cost structure and try to cut costs even if you are making money today
- If you don't someone else will
- The market goes up and down, your costs should always stay down



SHOQATA E SHPENDARËVE DHE PRODHUESVE TË
USHQIMIT TË KAFSHËVE TË KOSOVËS

KOSOVO POULTRY PRODUCER AND FEED MILLER
ASSOCIATION

Dardania SUI/3 Prishtine Tel. ++ 381 38 555 012

SHPUK Strategic and Business Plan

February 11th 2005

Purpose:

SHPUK is a non-profitable professional association, which unites, represents and coordinates the work of poultry producers and feed millers of Kosovo in area of common interest like transfer of technology for the egg and broiler production. It is an Agri-business association that protects the interests of its members throughout Kosovo, it procures its raw material in a collective manner, provides international contacts, and concurrently protect the interests of Kosovar consumers. SHPUK is helping its members on the egg and broiler marketing and lobbying the Ministry of Agriculture and Border Control on food safety and quality control issues.

The purpose of the SHPUK is to create member driven opportunities, to promote and expand sustainable private sector business activities throughout Kosovo.

Vision:

To assist local businesses in creating vertical integration by completing the production chain cycle together in egg and broiler production filling the market demand of Kosovo with quality products.

Mission:

Poultry and Feed Miller Association (SHPUK) mission is to:

- Assist it's members to purchase its raw material in a collective manner
- Provide international contacts to the industry
- Protect the interests of Kosovar consumers
- Assist the industry in egg and broiler marketing
- Assist the government and the industry in food safety and quality control
- Advocate public policies conducive to private sector development

Goals:

Poultry and Feed Miller Association (SHPUK) goals are:

1. Assist it's members to purchase its raw material in a collective manner

Group purchasing of soybean meal and the major feed grain is an ongoing problem that will have to be solved. Since original purchaser agreements generally involve large quantities of grain, there will have to be a major push by poultry producers if such a push is to be made. While there are individuals who have the ability to act as a grain dealer (sufficient finances, connections), there has been a reluctance by producers to commit to such a purchase as the short-term prices structure may change leaving them with commitments to purchase at higher prices. With the problem of Kosovo being small quantities purchaser, there will probably need at least two purchases. SHPUK as an association could play a key role in compiling the needs among its members and make one purchase. SHPUK could also rent a storage facility in Kosovo and store grains for the needs of the industry.

2. Provide international contacts to the industry

SHPUK as an association would be able to contact international companies in all fields that are needed to the industry

- Bulk grain purchase – SHPUK would establish contacts with large grain supplier like: Cargill or Bunge on the possibility of putting something like this together.
- Other avenues for exploration that SHPUK could do include attempting to source product through a European venue or even through Serbian dealers. These avenues will need to be explored more fully to determine if there is the potential for reduced price through quantity purchase, bulk purchase, etc.
- Equipment – There are a number of regional, Europe and US equipment producers with whom SHPUK could establish contact and explore the opportunities of doing business with them.
- Breeder Producers – Two world largest breeder producers are US based companies: Hy Line is the largest layer breeder producer and Ross is largest broiler breeder producer. They both are represented in Balkans only by their operations in Hungary.

3. Assist the industry in egg and broiler marketing

SHPUK could link the industry with companies that produce egg grading and packaging equipment together with packaging material (egg tables, boxes.). Also SHPUK is able to assist the industry by bringing international and regional experts to assist in branding the products.

4. Assist the government and the industry in food safety and quality control

SHPUK as an association could assist the government in preparing regulations and laws related with the food safety and quality control and assist the government and the industry to implement those. Disease control, biosecurity and laboratory analysis are the fields in which SHPUK could directly assist.

5. Advocate public policies conducive to private sector development

The removal of tax on imports of complete mixed feeds and by-products such as soybean meal and feed grain as well together with packaging material. Basically this results in a positive or negative competitive advantage for feedmills outside or inside of Kosovo that mix complete rations as they do not pay what amounts to about a 20% tax on most feed components coming from outside. SHPUK as an association would play the key role advocating the policies that put constraints in local industry.

In line with the above goals

- Formulate a less expensive feed formulation for poultry producers and feed millers, given the primary breed of laying hen in Kosovo.
- Recommend for additional improvements in better milling, reducing cost, increasing throughput, improving storage techniques, and correctly identifying input and output quality.
- Prepare and conduct the implementation of a training program to develop in-country capability for preparing least cost feed formulations.
- Educate poultry producers to the benefits of proper poultry feed formulations
- Assist in disease prevention activities and work with the Veterinary Institute to design and begin to implement a Kosovo wide disease prevention program for the poultry industry.
- Assist Kosovo Trust Agency with the status of privatization of state owned enterprise facilities currently being leased for layer and broiler production.

Attachment 4

Proposal for a Kosovo Veterinary Diagnostics Laboratory

Jeff Firman, PhD.

KCBS-IFDC STTA (January 3-23, 2005)

Introduction

A variety of support structures are needed to maintain a viable modern poultry industry. These include experts in production, nutrition, processing, marketing, finance, accounting, etc. A critical component of this expertise is trained veterinarians and laboratory technicians that can do field diagnostics of poultry diseases as well as laboratory tests as needed for rapid diagnosis of a variety of diseases with follow up on disease treatment. This is critical for routine testing of birds, programs for prevention of disease and rapid containment and treatment of disease. With the recent high pathogenic strain avian influenza outbreaks around the world, this has also become an issue for human health as it appears that the virus has mutated such that it will infect humans. There have been a number of human deaths related to this disease and has been devastating to the poultry industries in several countries.

Current situation

The current situation in Kosovo is in flux, but basically is ready for startup of a diagnostic lab. The laboratory could be located at and funded through the Veterinary Ministry in Pristina. They currently have space and several pieces of equipment in place that were funded through the World Bank. The Veterinary Ministry is responsible for a variety of areas including border inspections, meat and poultry inspection and certification, disease prevention and control, certification of incoming live animals and maintenance of a diagnostics facility for multiple species. Given their limited budget, it will be difficult for them to fulfill all of these obligations. A previous consultant has suggested starting with 3 basic tests for Newcastle Disease, Avian influenza and Salmonella (pollurum). Additionally, infectious bronchitis and infectious bursal disease might be included in this list as well as basic microbial testing and antibiotic sensitivity testing. There is also interest in testing samples for drug residue and this could be done by taking kidney swabs and running them against a Bacillus culture. Inhibition of Bacillus growth would indicate an antibiotic still active in the bird. Testing for other potential residues such as herbicides, pesticides and other controlled substances will be more difficult and will not be addressed at this time.

Justification

As noted above the situation relative to a veterinary diagnostics laboratory is in a state of flux. USAID has the potential to jump start this process through a minimal investment in equipment, supplies and training of personnel. With this investment it is anticipated that a functional lab would be up and running within 6 months. Without such an input it is unclear when this situation will be resolved. The potential for a disease outbreak will increase dramatically as the broiler industry is developed as there will be far more birds raised as well as birds being raised on litter versus cages which increases disease risk.

Needs to get laboratory functional

A basic laboratory setup will require basic equipment such as incubators and an autoclave for basic microbiology tests like salmonella culturing and antibiotic sensitivity tests of cultures, an ELISA (enzyme linked immunosorbent assay) reader for use with commercial kits such as Newcastle, Infectious Bursal Disease and Infectious Bronchitis and an agar gel immuno diffusion setup for Avian influenza testing.

Startup Supplies Required

Avian influenza test kit (480 samples)	510E
Newcastle test kit (480 samples)	397E
Salmonella anti-sera	500E
Salmonella medium (Supplement 500g)	200E
Brilliant green agar 500g	150E
Other supplies (peptone water,etc)	150E
Mycoplasma gallisepticum antigen for poultry 20 ml for fast agglutinations tests	500E

Equipment Required

Incubator	1600E
Centrifuge	2120E
Water bath	700E
Sterilizing oven	3200E
Waterproof pH meter	400E
Hotplate stirrer	300E
Vortex mixer	208E
Eppendorf single channel pipettes (4 units of different size)	552E
Pipette tips for above	400E
Mini orbital shaker	300E
Analytical balance capable of 0.0001 g	2900E
Self refilling syringes (automatic) capacity 0.5-20ml	200E
Automatic water purification system	3500E
Epi info (epidemiological info statistical software).	500E
Total	19287E

Personnel and training

Visit from Veterinarian (suggested expert, Dr Abdullah Gagic) to start testing procedures, possible periodic visits from more local veterinarian (Recommend Dr Darko Mitevski, Macedonia, mitevski@ukim.edu.mk).

3 Scientists to US for 2-4 wks training in basic diagnostics
Required funding will have to be determined.

Conclusions

It is believed that the above materials and training would be sufficient to get a diagnostics lab up and running. This is a necessity for a commercial poultry industry and may be years away without some outside financial inputs.