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Serbia, Factor 7: Animal Agriculture

Serbia: Sustainable Agriculture for a Productive Future

The Republic of Serbia is a small nation in Eastern Europe with an estimated population of about 7.2 million people. Comparatively it is about the size of the U.S. state of Kentucky. Serbia is a landlocked country in the Balkan Peninsula that has three main geographical regions, a fertile plain region in its North, an Adriatic Climatic region in the South and a Mountainous Region in the Southwest. Up until 1991, Serbia was part of a bigger nation called Yugoslavia that was comprised of the current nations of Serbia, Montenegro, Bosnia, Kosovo, Albania, Croatia and Macedonia. The Yugoslav War lasted ten years and severely crippled most of the Republic of Serbia's infrastructure and agricultural practices. The problem facing the Serbian farmers is regrowing those practices that made them successful in Agriculture before the war. In Vesna Crnkovic's report for the World Library and Information Conference she stated that, "Unfavorable demographic trends have resulted in unfavorable educational structure of rural labor force (of Serbs), which cannot meet the requirements of the labor market with their performance." While their practices have improved many people are still overpaying for basic agricultural goods compared to the rest of the European Union 25 (EU 25). This can also be cited in Crnkovic's report where she wrote that, "agricultural productivity and intensity of the Republic of Serbia are considerably below the European average and the reason for that is unfavorable living standard of farmers." Educating the farmers and creating technological, economical, and sustainable agricultural practices is key to developing Serbia's agricultural infrastructure.

Since the Republic of Serbia is not part of the European Union, the government is not obligated to take surveys on Income and Living Conditions they do not have very good records of family size and income. The literacy rate is currently 98 percent which is very good compared to most countries that had just come out of a homeland war within the last two decades. As of 2006, 'Serbia had about 60 agricultural middle schools throughout the country...' (ARCOTRASS 31). These schools oversaw the aspects of agriculture and food technologies. At the vocational level, however, are "criticised for producing the type of skills that businesses need nowadays to compete in a market economy." (31)

The economy of Serbia is well below that of many other countries in the European Union. This may be because a little over 90 percent of the nation can be regarded as poor. In a study done by ARCOTRASS-Consortium on the State of Agriculture in Serbia it found that:

Although the consumer in Serbia spends a much higher share of its disposable income on food, he/she consumes less basic agricultural products than the consumer in the EU 25. . . Especially obvious is this imbalance in the consumption of meat, which is traditionally very important in Serbia: Still, because of the high cost of meat the consumption per capita is much less than in the EU 25.

The Gross Domestic Product generated by Agriculture for the government is about 7.9 percent of their yearly revenue. For the population, however, their yearly revenue generated by Agriculture is at about 21.9 percent. This great difference in percentage could be attributed to the fact that privately owned farms account for about 80 percent of the total farms. This leaves 20 percent of the farms owned and operated by the state. Thus, profitability could be greatly improved with the education of better agricultural practices. This is one of the greatest challenges that faces Serbia as it rebuilds its economy and agriculture industries.

Some questions that we can ask ourselves as we look to help to Serbia may be: What are the main products grown in the country? Is each profitable? How many privately owned farms grow this good? How can we use agricultural educators here in the U.S. to help educate family farms on how to be more profitable? How can we reduce the spoilage of meat and dairy products? Answering these questions is key to figuring out how we can help the Republic of Serbia flourish.

Post Harvest Losses:

One of the biggest problems facing Serbia's animal industry is the spoilage of goods, such as milk, due to improper refrigeration and storage. Spoilage occurs when chemical reactions that cause offensive sensory changes in foods are mediated by a variety of microbes that use food as a carbon and energy source. The main microbes responsible for the spoilage of goods are single celled yeasts, multicellular organisms with nuclei such as molds, and prokaryotic and eukaryotic bacterias. Because these organisms grow very well in warmer and humid conditions, farms without refrigerators are more susceptible to the spoilage of their perishable products. The lack of refrigeration on farms comes down to money. Many families do not make enough profit on their agricultural products to afford such equipment. Therefore, a big challenge facing these farmers is getting the proper equipment to combat this spoilage.

Currently, many farms have to put the milk that they harvest in uninsulated milk coolers. Because milk is such a great medium for the growth of microorganisms, these coolers are not effective. This leaves a very short window of time for milk trucks to pick up the product. "According to data of the Bureau of Statistics of the Republic of Serbia only 0.9 billion litres of the raw cow milk production of 1.6 billion litres are processed in dairies (ARCOTRASS 20)."

The current Serbian government has tried and continually promotes the purchase these refrigeration systems to local farmers. The government has subsidized the purchase of a few refrigeration systems, however, it is still not enough. Whether or not this system will work out in the long run is largely up for debate. Even if the system is provided, the owners are still responsible for proper sanitation and upkeep of the machines.

Animal Health:

Another problem facing the farmers are the health of their animals. In my interview with Dr. Patrick Gorden from Iowa State University's College of Veterinary Medicine he stated that, "the lack of nutritional resources, educated veterinarians that can provide health services and money to afford proper care for the animals are the biggest problems in this field." On Dr. Gorden's trip to the Republic of Serbia in 2007 and again in 2008, he saw first hand the struggles that the basic Serb farmer has to go through daily to care for his animals. He later returned to the Balkan Peninsula, where he visited Kosovo, which has many of the same animal health problems as Serbia.

In the study done by the ARCOTRASS-Consortium, they found that, the average dairy cow in Serbia produces about 2,400 liters of milk per year. This is a drastically different number in comparison the rest of the EU, where a average cow produces roughly 5,000 liters of milk per year. Why is Serbia's yearly average cow's milk production so much lower than that of the European Union's? The answer comes back to the nutrition and living conditions of the animals. In EU countries all farms are overseen by one main body, this drastically different in Serbia. Since farmers do not produce a good amount to go to both the family, the animals, and the market, this either hurts a singular part of the triangle, like the animals, or all three take a hit and produce less as a result. However, as Serbia looks to join the EU soon the parliament is creating new laws to combat poor agriculture living conditions. In the USDA's Foreign Agricultural Service report on Food and Agricultural Import Regulations and Standards, they found that they have passed many new and amended laws in the hope to add to proper animal welfare in the country.

“With changes and amendments to *the Veterinary Law* (“Official Gazette RS” 30/10 and 93/12), Serbia is getting closer to the EU standards and is improving the conditions for the export of animals and animal products to the EU.” The amendment set new standards for the living conditions of animals within the country. In the law, altogether, it identifies animal diseases that are subject to the measures aimed at their prevention, detection, eradication and containment of such diseases. Another such law is the *the Law on Animal Welfare*, this law regulates animal welfare which also includes the treatment of animals during slaughter, keeping, raising, circulating, transporting, killing and experimenting.

As of April 11th, 2012 Serbian officials launched a EU-funded Twinning Project, “BUILDING CAPACITY IN THE AREAS OF FOOD SAFETY AND ANIMAL WELFARE.” This project was funded by the EU with EUR 2.0 million and went through September of 2013. The objective of this project was to, “provide assistance to the Veterinary Directorate of the Ministry of Agriculture, Forestry and Water Management to strengthen their capacity to enforce and oversee implementation of the Serbian Food Safety Law and Animal Welfare Law which are already largely aligned with EU legislation” (The Delegation of the European Union to Republic of Serbia)

Serbia also has to deal with many different types of infectious diseases in its livestock. One such disease is Classical Swine Fever (CSF) or Hog Cholera. This disease has symptoms of fever, skin lesions and convulsions. The virus can attack the nervous system of the pig causing death, but most die from dehydration from severe diarrhoea. Containing the virus is very problematic. In small populations the best way to eradicate it is to have quick detection, diagnosis and slaughter. In large case outbreaks emergency vaccination is used because the slaughtering method is not feasible. Recent outbreaks in Serbia in October 2007 and again in November 2010 both resulted in said vaccination of uninfected animals. Another disease that affects the country’s livestock production is Newcastle disease. This disease is infectious to many avian species especially poultry. Symptoms are widespread, but one common one is lesions. The virus may attack the respiratory and/or the nervous system as well. In 2007 a total of nine outbreaks were reported and more than 5,000 poultry died as a result. As a response the Serbian Veterinary Directorate created surveillance and protection zones around the main villages of infection. This did not help end the outbreaks though and more outbreaks occurred the next year. Even with the recent outbreaks of such diseases the government has done a good job of containing and preventing outbreaks with the help of the EU.

Farm to Market:

Recently, Serbia has had a lot of troubles reaching outside of its borders and being able to trade with other countries. This is largely due to the fact that they are not part of the European Union, but on March 1st, 2012 the Republic of Serbia was granted the status of a candidate country into the EU. Many laws have been created in an effort to make Serbia a more appealing choice for being entered into the union.

The Law of Animal Welfare outlines ways the government plans to assist in the exportation of livestock as a productive business. The law facilitates exports of Serbian animals and products of animal origin, by helping Serbia to harmonize its requirements with those of the EU on keeping and transporting animals. This also helps Serbia’s effort on becoming part of the European Union. Through the exportation of goods to countries around Serbia, the country and its agricultural industries will thrive.

Another problem that occurs in the country is being able to support its own peoples economy. As pointed out earlier, many farmers have troubles being able to afford basic tools and equipment to make their farms run sustainably and profitably. “This is because many of them do not make enough money off of what they raise or produce that they cannot afford basic supplies and equipment,” according to Dr. Gorden. Developing a better way to get money into the hands of the farmers is key to making the country more successful as a whole.

Education:

A major key to getting the Republic of Serbia's animal agricultural production to a sustainable level is the building of the Agricultural Education for farmers. Currently there are many advisory and extension services in Serbia. One such service is the Institute for Science Application in Agriculture (ISAA). The ISAA currently employs about 750 staff in 34 agricultural sectors spread throughout the country. The Institute works primarily with medium to large scale private and state owned farms.

Serbia also has a comprehensive Ag. Education program, which envelops many vocational schools and universities. This is run by the Ministry of Education and as of 2005 had 60 middle schools in its program. However, at a vocational standpoint many of the schools are criticised by the agriculture industry for not providing the types of business skills needed in the modern day job world and students are not prepared to compete in the very competitive economy we have today. (ARCOTRASS 31)

Another program that is being used is the USAID. This is where many American Veterinarians and Agricultural Professors go to Serbia and teach farmers new or improved practices that help make their farms more sustainable and productive. This is a great learning experience for both farmer and educator because of what they learn from each other. In our interview I asked Dr. Gorden to elaborate on some of the key things that producers are being taught to help the farmers be more successful.

“Improving reproduction, milk quality and cow health were some of the main keys. By improving their nutrition program they could improve cow health. Some things that could use improving were developing and balancing their rations and getting good quality feedstuffs.”

Summary and Conclusion:

The animal agriculture industry is extremely important to Serbia's current and future economy. Fortunately the government is making great strides to grow the agriculture industry as a whole, through education systems, improvements in animal health and providing farmers with the equipment needed to provide for their animals and family. The future looks bright for Serbia as it looks to join the European Union and expand their economy.

Works Cited

ARCOTRASS-Consutorium. *Study on the State of Agriculture in Five Applicant Countries Country Report: Serbia*. 2006. PDF file.

Berkum, Siemen van, and Natalija Bogdanov. *Serbia on the Road to EU Accession: Consequences for Agricultural Policy and the Agri-food Chain*. Belgrade: CABI, 2012. Print.

Crnkovic, Vesna. “Agricultural Rural Libraries in Serbia in the Era of Information Technology.” 2012. PDF file.

The Delegation of the European Union to Republic of Serbia. *Building Capacity in the Areas of Food Safety and Animal Welfare*. 2012. March 08, 2014. <<http://www.europa.rs/>>

http://www.europa.rs/en/projects/projektne_aktivnosti/1502/EU+launches+project+to+help+improve+food+safety+and+animal+welfare+in+Serbia.html

Doyle, Dr. M. Ellin. “Microbial Food Spoilage: Losses and Control Strategies.” 2007. PDF file.

Gorden, Dr. Patrick. Personal Interview. March 02, 2014.