**FOR T.D.C PART- II GEOGRAPHY (Hon’s)**

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 **BY**

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**Q. – DAIRY FARMING (WORLD) : --**

 **Dairy farming** is a part of agriculture, practiced to produce milk which is generally from **dairy** cows, and also from sheep, camel, and goat. New Zealand is one of leading countries which export **dairy** products, whereas India is the largest milk producing country in the world.

 Milk is defined as the lacteal secretion obtained by the complete milking of one or more mammalian animals. Dairy farming is a part of agriculture, practiced to produce milk which is generally from dairy cows, and also from sheep, camel, and goat. Dairy industry is a highly important component of food industry, which buys raw milk refrigerated for farmers to normalize by transforming and distributing it (Moran H. , 2005). Usually, the milk is processed in a dairy factory or on the dairy farm itself. From hand milking the cows to machine milking, milk production has developed immensely with latest technologies. Dairy farming has been done all over the world, but most of the countries which produce milk consume internally. New Zealand is one of leading countries which export dairy products, whereas India is the largest milk producing country in the world. Indian dairy sector contributes a major share towards the total gross revenue from livestock sector and holds an enormous potential to bring about rapid economic growth, particularly for the benefit of the weaker sections and the rural poor. Livestock production has been, and will remain for many decades, one of the most important economic and social activities of human culture in developing countries where hundreds of millions of people depend either directly or indirectly on livestock-based activities (Preston and Murugueitio 1992).

***Increasing world population a challenge for world milk production :--***

 Milk production needs to increase 200 million tons in the next 15 years, from 700 million in 2010 to 900 million by 2025, if we are to meet the demands of the forecasted 7.8 billion people, according to Torstein Hemme from IFCN. But we must not forget that in the past 15 years milk production increased 170 million tons, and 62% of this milk came from Asia.

 Torstein Hemme, who presented the 2010 IFCN report at the World Dairy Summit in Parma, said that cost of milk production is rising very fast, especially in the emerging markets and where farmers need to purchase feed. There are farming systems that will come under a lot of pressure. In China for example, there is a high share of purchased feed in the diet, there is very little land base, rocket-rising salaries and a currency which is depreciated. This is a very complex mix of negative factors, which can lead to increased costs of 10-15% unless there is a change of policies.

 "We need to monitor these processes to guide processors, farm equipment suppliers but also farmers and policy makers, to know where they are, to navigate in this process" says Torstein Hemme.

 Also, the industry needs to reconsider what is the right farming model for the future. Torstein gives the example of India, where they had a very successful dairy farming model: farms with two cows in the backyard, using straw, a crop residual not used anywhere else, as feed, producing milk and growing the industry by 4%.

 "This model works perfectly if salaries are 0.20-0.25 dollars per hour. It creates a lot of value. But if the salaries rise to 0.35 or 0.40 dollars, or even to one dollar like in China, the system doesn't work anymore, and there is a need for a new farming system. The new system will probably be larger, with a slightly higher milk yield, professionally managed, with more technology and with another feeding system that would match this new dairy farming model," says Torsten Hemme.

 The 2010 IFCN report presents the results from an analysis of dairy regions within a country, whereas previously the analysis were per country. This regional analysis shows that within a country there might be regions that will increase their milk production by 5%, while in another region in the same country there will be a 5% decrease of production, because they are not competitive.

"We need to measure where the competitiveness is, and benchmark with others to see how strongly these drivers I mention earlier push the prices up."

**Dairy farm numbers in 2010**

 World average dairy farm size is 3 cows. In developing and transition countries many small scale dairy farms with 1-2 cows exist. On the other hand only 11 of the 90 countries have an average farm size of more than 100 cows. The extremely high differences in farm structures can be shown via the example of comparing the farm structures of the USA with Pakistan. In the USA twice the amount of milk is produced compared to Pakistan, but this is produced in the USA from only less than 1% of the amount of dairy farms Pakistan has.

 There are 145 million dairy farms in the world, and the average is 5-7 people/farm. This means that 0.7 -1 billion people live on dairy farms.

* **0.3% of the farms and 16% of the cows belong to business farm segment with >100 cows**
* **22% of the farms and 28% of the cows belong to the family farm segment with 10-100 cows**
* **78% of the farms and 56% of the cows belong to the house hold farm segment with 1-10 cows**

***China's major milk-producing region to promote large-scale dairy farming :-***

 YINCHUAN, Northwest China's Ningxia Hui Autonomous Region has released a plan to promote quality development of its dairy industry, aiming to see its large-scale dairy farms, with over 100 cows, account for more than 99 percent of the region's total by 2022.

 Ningxia, the country's major milk-producing area, aims to have its annual production of raw milk exceed 2.6 million tonnes by 2022 and its comprehensive utilization rate of dairy manure reach 92 percent, according to the plan.

 Ningxia will encourage large-scale dairy farms to develop ecological farming and upgrade enclosure facilities to promote an intensive, automatic and modern dairy industry, it said.

 The plan also said Ningxia would boost the combination of forage production with dairy farming based on the optimized milk sources distribution.

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| Ningxia recorded about 600,000 cows in stock by the end of last year, one of the largest in China. |  |  |
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 ***Milk production :-***

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| ***Rank*** | ***Country*** | ***Production (1000 tonnes/year)*** |
| ***1*** | ***India*** | ***176,272*** |
| ***2*** | ***United States*** | ***97,760*** |
| ***3*** | ***Pakistan*** | ***44,293*** |
| ***4*** | ***China*** | ***34,869*** |

Other findings in the 2010 IFCN report:

 Based on monthly data collection in 49 countries milk production in the first 6 months 2011 grew at a high rate of 3%.

Large increases in Asia: India(+2.9), Pakistan (+0.9), China (+0.8) and Iran. Also Brazil (+1.3) and the US (+1) incased their production.

***Milk prices***

 During more than three years, from November 2006 to November 2009 milk prices were very volatile in a range from 19 to 58 US-$/100 kg milk. Since November 2009 we have seen relatively stable prices on a level .

 The IFCN network distinguishes two regions based on milk yield: one where cows yield 8000 kg ECM or more per year (Western Europe, North America and Middle East) and low yield regions where the yield is 6000 kg ECm or less per year (Africa, CEEC (Central & Eastern European Countries), South America, Asia and Oceania).

 Western Europe, North America and the Middle East had the highest costs. Costs in CEEC, South America, Asia and Oceania were on a similar level of 30 to 35 US-$ per 100 kg milk.

Compared to the IFCN cost analysis for 2009 in all world regions costs increased greatly in 2010. Western Europe is an exception as costs decreased.

 There are indications that low costs are more a result of having the right farming system in terms of feeding system, technology, intensity and management skills than high yield or large farm size.

***Dairy Farming in Africa :-***

 In Africa, dairy farming is a major source of income for women. Tending cows allows women to stay close to the household and local village while maintaining their status as income-earners for their families. In Uganda, USADF is investing in dairy enterprises as a transformational value chain to eliminate hunger and diversify the diets of women and children. Initially launched as a small women’s co-op, Gulu Women’s Dairy Cooperative has grown into a major [women-owned](http://www.usadf.gov/blog/2016/9/15/feed-the-future-week-2016) and operated commercial enterprise. With support from a USADF enterprise expansion grant, Gulu Women’s Dairy tripled its membership and constructed northern Uganda’s first pasteurization plant for value-added dairy products, such as yogurt and long-life milk.

 As the town of Gulu, once the epicenter of a major insurgency, continues to stabilize, members of Gulu Women’s Dairy Cooperative are not only the breadwinners for their families but also key decision-makers in their community, ensuring no one goes hungry and contributing to local economic activity and food security.

***Dairy Farming in India***

 In 2010, dairy industry is the second largest food industry in India in terms of revenue behind meat industry. In 2010, the largest dairy company operating within the country in terms of annual global sales is Nestle with $ 18.6 billion revenue. Dairy farmers produce largest staple food in the world i.e. Milk. The quality and safety of milk and its derivatives are directly related to conditions of hygiene and environment. Good hygiene practices help to improve the quality and value of the product and fundamentally determine the success or failure of a dairy farm.

 Ninety six dairy farmers (96) among them 44 females have been trained on “Feeding strategies to improve dairy production in Samastipur District of Bihar”. The one-day training programme was organised by the International Livestock Research Institute (ILRI) and partners of Bihar, India. The main purpose of the training held March 30, 2012 was to create awareness among milk producing communities about the importance of a balanced ration feeding to dairy cattle. The farmers were introduced to the nutritive quality of locally available feeds and fodders and the proper utilization to improve the production of dairy cattle.

 Most of the dairy farmers of this region have been utilizing one or two home-made feed ingredients as concentrate to feed dairy cattle along with wheat bhusa/chaffed paddy straw and green fodder to some extent. Only farmers with a strong financial background are using commercial marketed concentrate mixture.

 Dr. S. P. Sahu, Consultant of ILRI discussed the protein, energy, minerals, salt and vitamins requirements of dairy cows so as achieve an adequate amount for efficient milk production and better reproductive efficiency. He stressed that high quality forage complemented with balanced concentrate mixtures made of locally available feed ingredients helps improve the quality of milk.

 Many dairy farmers who took part in previous feeding trials shared their experiences and benefits with the participants. A demonstration session following the training helped the dairy farmers to learn how to prepare the balanced concentrate mixture manually using locally available feed ingredients at cheapest cost without compromising the nutritive quality of concentrate mixtures.

 The training was organised under the Cereal System Initiative South Asia (CSISA) project which seeks to decrease hunger and malnutrition and to increase food and income security of resource-poor farm families in South Asia through the accelerated development and inclusive deployment of new varieties, sustainable management technologies, and policies.

 The projects’ key objectives are the widespread delivery and adaptation of production and post-harvest technologies to increase cereal production and raise incomes; crop and resource management practices for sustainable future cereal-based systems and introduction of high-yielding, abiotic stress-tolerant, and disease- and insect-resistant rice and wheat varieties and hybrids for current and future cereal and mixed crop-livestock systems.

 Other aims include introduction of high-yielding, heat-tolerant and disease-resistant maize inbred lines and hybrids for current and future cereal and mixed crop-livestock systems, technology targeting and improved policies for inclusive agricultural growth and the creation of a new generation of scientists and professional agronomists for cereal systems research and management.

 At present, the protection of health and animal welfare are provided by a comprehensive program of udder hygiene and processes in livestock bio-security program. These programs help dairy farmers to:

Optimize milk yield, quality and price of milk

Improve operating profits

Decrease the infection pressure on the dairy herd

Maintain a high level of animal welfare

The function of cooperatives in dairy farming is studied along with the impact of the cooperatives in dairy farming.

Milk production is one of the most important elements of agriculture in India. During the past 5 years, farms in India increased their total production by 86%. The level of milk production in 2011 increased by 5.4 tons and was 136.4 thousand tons (104.1% compared to last year). Average yield in the region is 2,717 kg per cow, which is 272 kg more than previous year. At the same time dairy farming area in contrast to the poultry industry is the sector in which the performance is far from self-sufficient (Ruricola, 2009). Milk production per capita in the region is 200 kg per year.

***IMPOTANTS OF DAIRY FARMING---***

 Dairy farming is an important way for farmers to increase their earnings and access to more nutritious food for their families. While subsistence dairy farming provides not only fresh milk and a source of basic income, value-added products, such as yogurt and cheese, provide a higher source of revenue.

 ***FUTURE IN DAIRY FARMING***

American dairies provide a vital source of income to rural families But while America's family dairy farmers continue to work hard to provide milk, jobs, and a sustainable future for their families, unmanaged milk inventories and unfair prices have made it impossible for most dairy operations to make a profit.

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