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Industry Debates Forage Production and Imports at Conference

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Report Highlights:

Presenters at the 2018 China Forage Conference noted that China is seeking to balance domestic forage production, imports, and environmental protection goals, while also maintaining meat, poultry, and dairy production. At this conference, and in subsequent public fora, policy makers have noted the government's desire to produce more high quality forage instead of cereals (especially corn), which have not been sufficiently utilized by consumers or animal husbandry industries. Experts note that the domestic animal husbandry industry is expected to continue to need forage imports, especially alfalfa from the United States, due to its high quality and price competitiveness. Domestic forage production is constrained by traditional production methods, crop production located far from animal production areas, and governmental grassland protection and grazing regulations. Although additional tariffs and other technical barriers on U.S. forage products have lowered imports, U.S. alfalfa (and other forage products) is expected to remain an important component of rations for China's animal and dairy industries.

China Seeks to Protect Traditional Forage Production Sources

China has a grassland area of over 400 million hectares, which is more than three times larger than its arable crop land. Due to overgrazing, a large proportion of grasslands have been degraded, including more than 30 percent that the government considers seriously degraded. China has a large number of forage and grazing livestock, including 73.7 million beef cattle, 13 million dairy cattle, and 311 million sheep and goats in 2016. China is now making serious efforts to restore the ecological balance of grassland areas, primarily by regulating and/or restricting animal production in these natural grassland and semi-grassland grazing areas. Specific government measures to reduce grassland degradation include:

- grazing prohibitions
- enclosing grassland areas
- mandating rotational grazing
- rearing animals in pens
- encouraging forage production, such as alfalfa, sheep grass, oat grass, sorghum, and corn

China's Forage Landscape

Traditionally, China's agriculture is centered on food crop/cereal crop and pork production, with little land officially devoted to producing feed and forage. In recent years, [China has designated forage, in addition to corn, rice, and wheat](#), as a strategic agricultural sector to develop further. Forage production used to take place within the pastoral regions of Tibet, Inner Mongolia, Xinjiang, Sichuan, Qinghai, and Gansu. These regions are also central to China's animal and dairy production. In 2016, they produced an estimated 1.8 million tons of beef, 2.3 million tons of mutton, and 10.8 million tons of milk, or 25.6 percent, 49.1 percent, and 29.9 percent of the national total respectively.

In recent years, the Chinese government has gradually allowed the use of more land for forage crops, such as corn silage and alfalfa. In 2018, imports of planting seed for forage crops led all other categories of planting seeds. Corn silage was mainly grown and used locally, with limited amounts transported elsewhere, while alfalfa was more frequently transported elsewhere for use by large commercial dairy farms. Alfalfa producers have become more modern and centralized, which has led to increased quantities transported across the country.

Corn Silage

In 2015, the total area for planted corn was 36.6 million hectares, which produced about 186 million tons of corn. Of this, 92 million tons was for human consumption, 94 million tons was forage, mainly for pigs and chicken, and a small remainder for reserves.

Starting in 2015, government policy sought to convert more grain corn to silage. A 100,000 hectare program was implemented at first in 10 provinces and within 30 counties, however the actual implementation area in 2015 was estimated at 190,700 hectares. Each county received government

subsidies of RMB 1,000 yuan/mu¹. Total silage production out of the program is about 10 million tons, and estimated net profit is RMB 335 yuan/mu

In the following year, 17 provinces with 121 counties implemented the program with 453,000 hectares. The subsidy level remained the same at RMB 1,000 yuan/mu. In 2016, the program brought corn silage growers a net profit of RMB 348 yuan/mu. In 2017, the program continued in 17 provinces, but expanded to 431 counties and targeted 667,000 hectares.

With the program, China's silage production area reached 2.3 million hectares, but production was mostly used by local farms. Total yield was close to 50 million tons. Inner Mongolia was the largest province/region by production area and total yield.

2016 Corn Silage Production

Province/Region	Inner Mongolia	Xinjiang	Jilin	Heilongjiang	Shanxi
Acreage (1000s ha)	917	392	148	107	102
Yield (million ton)	23.98	8.88	3.52	1.69	1.69

Although silage production has increased, most corn silage was used locally or transported and traded locally. Only in recent years have some local forage companies begun to process and bale the corn silage and sell corn silage to other provinces. Data show that only about 67,000 hectares were used for commercial corn silage production in 2016.

It appears that the government will continue to encourage more silage production. China's 2010 – 2016 Development Plans for Adjustment of Crop Farming Structure stated that by 2020 the food crop areas will be maintained at about 110 million hectares. Land for rice and wheat will be maintained at 53.3 million hectares and grain crops will be maintained at 9 million hectares. By 2020, the forage areas will reach 6.3 million hectares, of which most will be corn silage.

Alfalfa

By 2016, the total alfalfa production area was about 3.3 million hectares including alfalfa production in traditional grassland and newer agricultural areas. The provinces and autonomous regions of Gansu, Shaanxi, Inner Mongolia, Ningxia, and Xinjiang produce the most alfalfa.

2016 Alfalfa Production of Major Regions

Region	Gansu	Shanxi	Inner Mongolia	Ningxia	Xinjiang
Yield (1000s ha)	1035	817	768	607	607

In 2008, the melamine food safety scandal raised the attention in China about dairy product safety. In order to produce high quality milk, alfalfa hay demand increased. China developed an action plan to enhance dairy and alfalfa production aiming to provide RMB 500 million in support programs to

¹ Mu is the traditional unit of land area in China. One mu is equal to 1/15 of a hectare.

develop 33,000 hectares of alfalfa. Alfalfa farms of over 200 hectares would receive a subsidy of 600 yuan/mu in 10 provinces in the Northeast, North, and Northwest. Gansu, Shaanxi, and Inner Mongolia are the largest alfalfa production areas. In 2016, commercially produced alfalfa amounted to 444,000 hectares and total yield was 3.8 million tons.

2016 Commercial Alfalfa Production of Major Regions

<u>Province/Region</u>	<u>Gansu</u>	<u>Inner Mongolia</u>	<u>Ningxia</u>	<u>Heilongjiang</u>	<u>Shanxi</u>	<u>Xinjiang</u>
Acreage (1000s ha)	196	107	48	26	21	15
Yield (million ton)	1.94	0.73	0.42	0.14	0.14	0.12

Other Forage Crops

Sheep grass is mainly produced in eastern China within natural grassland areas. In addition to rotational grazing, people also cut and process sheep grass for trading. In 2016, an estimated 1.0 million hectares of sheep grass was consumed by animals and 1.09 million tons of sheep grass was produced and traded. Heilongjiang, Inner Mongolia, and Jilin are the three biggest producers.

Forage Imports

As the operational scale of dairy farms increase, there is a corresponding increase in demand for high quality alfalfa. These large commercial dairy farms need a stable supply of alfalfa, especially those in Shandong, Henan, and Anhui Provinces. Large modern dairy farms are the major users of the U.S. alfalfa, as the local alfalfa can only supply about 60 percent of domestic needs and transportation of local alfalfa may cost more than shipping from the United States. In 2017, China imported 1.4 million tons of alfalfa hay, among which 93.5 percent was from the United States, totaling 1.3 million tons.

Due to the U.S.-China trade dispute, China levied an additional 25 percent tariff on U.S. alfalfa hay. The price of alfalfa hay increased by 500-600 yuan/ton, and the average cost of one kilogram of milk increased by six percent. It is estimated that imports from the United States in 2018 may decline by 50 percent. If the tariff remains at its current level, the potential impacts could include:

- China will diversify its import sources
- Dairy farms will use less alfalfa hay in cattle feed, and replace it with other rations
- With increasing alfalfa hay prices, local producers will be more willing to grow more alfalfa hay

In 2017, the consumption of high quality alfalfa reached an estimated 3.9 million tons, of which about 1.4 million tons were imported. According to the government's 2016-2020 Alfalfa Development Plan, by 2020 total demand for high quality alfalfa will be 6.9 million tons, of which 1.5 million will rely on imports. The plan anticipates converting 200,000 hectares to alfalfa crops, and the targeted per unit yield of alfalfa will reach 600 kg/mu. Only in this way, can the government achieve its goal of 80% self-sufficiency in alfalfa. Experts are suspicious that this goal can be met because:

- China continues to face ecological challenges in forage production regions.
- Natural grassland will continued to be carefully protected and not much grassland will be used for forage production.

- The State Forestry and Grassland Administration replaced the Ministry of Agriculture and Rural Affairs as the agency responsible for grassland administration. This is expected to impact relevant policies and possibly delay forage production modernization.
- Limited water and land resources will continue to prevent larger-scale forage and alfalfa production.
- The acquisition of concentrated lands for alfalfa production face political and administrative difficulties.
- Cost of alfalfa production and market price fluctuations will impact overall production.
- China has 13.4 million dairy cows, however only about three to four million milking cow are fed alfalfa.

Conclusions

1. Overall demand for high quality forage is expected to increase.
2. More corn land is expected to be used to produce corn silage.
3. Alfalfa is expected to remain a major high quality forage choice for commercial dairy farms.
4. China will continue to import alfalfa.
5. U.S. alfalfa exports to China should increase if additional tariffs are removed.

For more information about this report and forage marketing opportunities in North China, please contact:

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