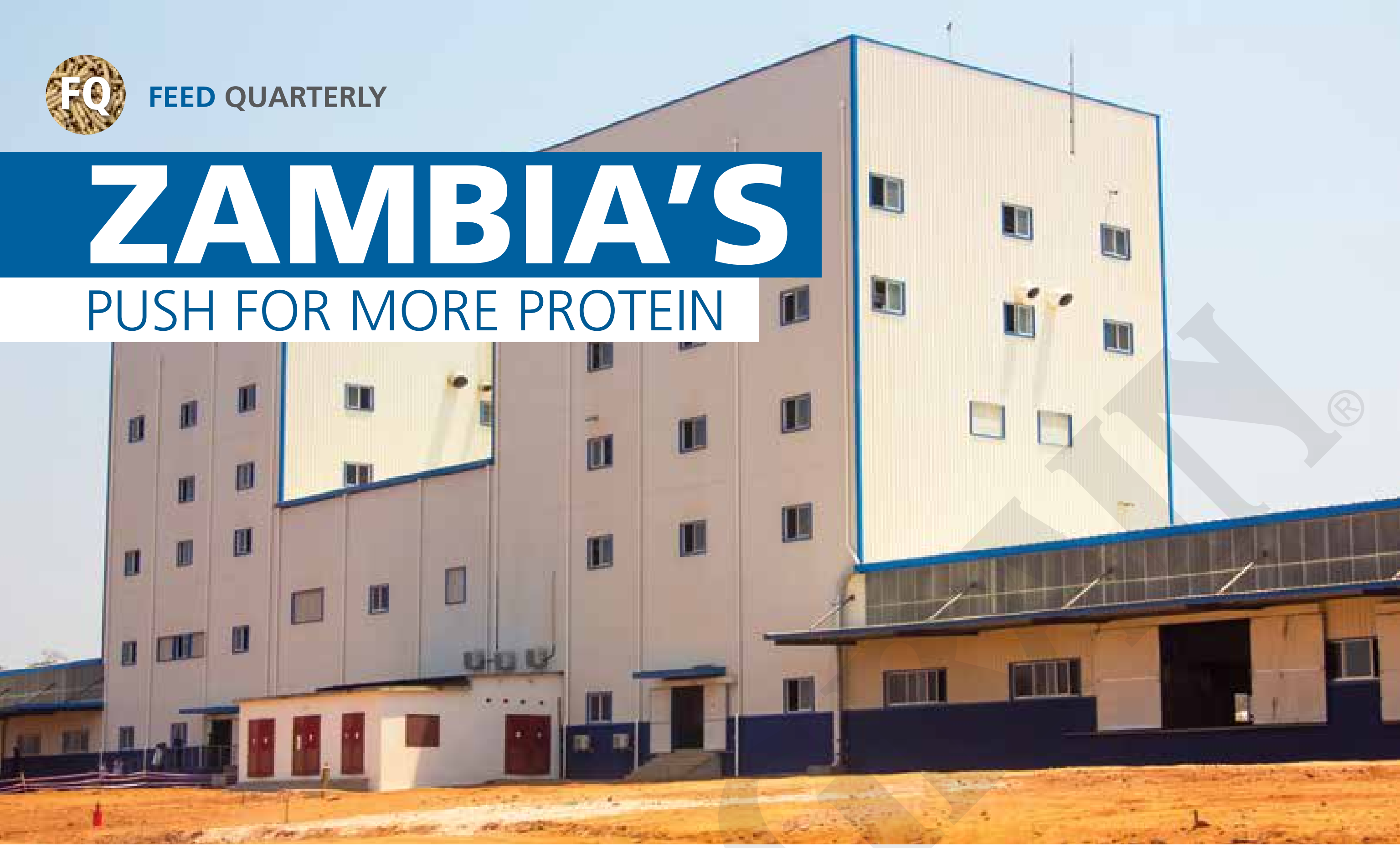

ZAMBIA'S
PUSH FOR MORE PROTEIN

Investments in meat and animal feed production reflect changing diet in this African country

by David McKee

Aller Aqua's fish feed plant in Siavonga, Zambia. Photo courtesy of Famsun Group.

With the exception of a few conflict-torn pockets, since the turn of the century sub-Saharan Africa has achieved much greater availability of carbohydrates despite the world's highest rates of population growth. Gains in production of cereals, mainly corn, and root crops, principally cassava, are a big part of the positive caloric equation. Another is importation of low-cost rice and wheat to feed burgeoning urban areas. Undernutrition rates above 30% in many countries across the vast region, per FAO data, are still high but have been coming down.

The next stage, greater intake of protein foods, particularly animal-sourced ones, is well underway in many countries due to investments in feed milling, oilseed crushing, layer and broiler farms, aquaculture, improved dairy and beef cattle herds, pasteurization plants, feedlots and slaughterhouses.

A recently published report uses Zambia as a case study of the pan-African trend toward greater availability of commercially produced, affordable, protein-rich foods. U.K.'s CDC Group, an international development bank, commissioned SAIPAR, a Zambian research institute, to carry out a comprehensive analysis of key value chains.

One major conclusion is that though Zambians overall have benefited from greater food production, as evidenced by reduced rates of childhood stunting that is partly due to insufficient dietary protein, much could still be done to make commercially-produced, animal-sourced foods (ASF) more accessible to the rural poor who still make up over half the country's population of 16 million.

"Low income consumers spend less per household, but still account for a large proportion (43%) of the overall market," the study said.

Total spending on food by these households, mainly composed of smallholder farmers in villages, amounts to around $500 million per year, according to data from Zambia's 2015 Living Cost Monitoring Survey. Since the majority of these households grow their own corn and cassava, most of their spending is on animal proteins like dried fish, live chickens and milk from village cows.

FEED INPUTS

Zambia's relatively modern agriculture and food sectors are well-positioned to respond to demand for more accessible and affordable ASFs. Self-sufficiency in both soybeans and corn underlies a thriving feed milling industry. The USDA estimates that 600,000 tonnes, over one quarter of total corn production, now goes to do-

The glut in soybeans resulted in part because Zambia as a landlocked country has no easy export markets.

mestic feed consumption. Commercial producers of compound feed still take less than half, with most non-food corn used by the thousands of small and medium broiler farming enterprises.

Government purchase, transport and storage of smallholder corn and allocations to industrial roller mills amounts to an indirect subsidy for those companies that produce feed as well.

Soybean production peaked at 351,000 tonnes in 2017 and dropped to 321,000 tonnes in 2018, per the USDA. Its growth directly parallels the rise in demand for compound feed for the commercial production of protein foods. In 2002, soybean production was only 2,000 tonnes.

Large commercial farmers with pivot irrigation accounted for the initial surge in soybeans, often cutting back on wheat acreage. But when prices soared, many smallholders also began planting soybeans in place of corn.

Soybean farmers face major challenges. One is severe price volatility. From 2017 to 2018, farmgate soybean prices fell from over $400 per tonne to less than $150 per tonne but have partially recovered. The glut in soybeans resulted in part because Zambia as a landlocked country has no easy export markets. Plantings were reduced following the bumper harvest and price collapse.

Strict non-GMO laws also mean lower soybean as well as corn yields, resulting in higher overall feed costs in comparison to South Africa, which has no such restrictions and where soybean production has doubled. The GMO restrictions also mean that soybeans or soybean meal cannot be imported from South Africa when prices spike. Only India is an alternative source of non-GMO corn.

SOYBEAN CRUSHING

The presence of several soybean crushing companies is a competitive advantage for feed production. After South Africa, where soybean production has taken off, Zambia has the most soybean crushing capacity of any country in sub-Saharan Africa.

Newcomer Global Industries Limited is now the country's largest oilseed crusher with a 1,000-tonne-per-day capacity plant in Ndola in the Copperbelt. It started up only in 2017 with investment from India, but, according to industry informants, has won a large share of the market for the high-protein soybean meal demanded by expanding aquafeed production.

Illegal imports of cheap palm oil from southeast Asia in addition to competition for the smaller 2018 crop have squeezed soybean crushers' profitability. In late 2018, Cargill shuttered and began mothballing its 500-tonne-per-day capacity crushing and vegetable oil refining plant in Lusaka, which it had acquired in 2015 from Zambeef and upgraded.

FEED MILLING

Both large and small animal protein producers benefit from a sophisticated feed milling sector that consisted of eight companies whose output of a range of compound feed products reached 300,000 tonnes in 2017, according to Alltech's 2018 global feed survey.

About 45% of feed production is for poultry, which includes 90% for broilers. Large layer farm operators mostly mix loose feed themselves, grinding corn in hammermills on site and buying soybean meal and vitamin and mineral premixes.

The two new dedicated aquafeed producers that started up in late 2017 will increase national compound feed output by at least one-third within a year or two and greatly enlarge the aquafeed share, as farmed fish production continues its double-digit growth. Danish multinational Aller Aqua partnered with local company Yalelo to build a fish feed plant, commissioned in 2017, with capacity of 50,000 tonnes per year in Siavonga on the shore of Lake Kariba. It is now undergoing an expansion to add a second 14-tonne-per-hour line supplied by Famsum Group.

Norway-based Skretting, a subsidiary of Nutreco of the Netherlands and the top global fish feed producer, has partnered with Lake Harvest, a subsidiary of African Century Foods, to build a smaller, competing aquafeed plant in Siavonga, also made by Famsum.

As in the rising aquaculture sector, some of the poultry feed millers are parts of fully integrated operations that

Self-sufficiency in both soybeans and corn underlies a thriving feed milling industry.

include day-old chicks, broiler farms and slaughtering lines. These include Ross Breeders and Nutrifeed, which are subsidiaries of Country Bird Holdings Ltd. of South Africa and Zambeef, Zambia's largest agribusiness company, which produces Novatek brand feed.

FISH, POULTRY AND BEEF

The SAIPAR study reveals that consumption of farmed fish, predominantly tilapia, increased rapidly in the last decade to surpass poultry as the most important ASF in Zambia. This development reflects the efficiency of global aquaculture value chains with their improving aquafeed conversion rations. The initial surge in consumption resulted from the increase of frozen fish imports from 8,000 tonnes in 2011 to 127,000 tonnes in 2016.

The second stage was the rapid expansion of large-scale, caged fish farming in Zambia, concentrated in Lake Kariba, the world's largest reservoir by volume, separating Zambia and Zimbabwe. Domestically farmed fish volumes are likely to triple from 31,000 tonnes in 2016 to 100,000 tonnes in the coming year or two. Production in 2011 was 9,000 tonnes.

The poultry sector is highly developed but still in need of expansion in order to reach more underserved consumers in rural areas, according to SAIPAR.

Commercial egg production is an earlier Zambian success story with competition and investment lowering production costs and market prices, enabling a rapid increase in consumption. A handful of both locally and internationally invested layer farm companies, mostly in Copperbelt province, account for over two-thirds of egg production. The largest of these, Golden Lay, has over a half-million hens in lay.

Zambia now has annual output exceeding 1 billion eggs with at least 10% exported via informal cross-border trade to neighboring Katanga province of the DRC. Zambians consume over 60 eggs per capita per year, much higher than the average for sub-Saharan Africa, but still well below many developing countries elsewhere.

Efficient distribution by layer farms and traders directly to township markets means that retail egg prices hover around 10¢ per piece, which is low by international standards.

Abundant soybean meal, corn and bran help keep layer feed prices in check. Globally feed is usually two-thirds of both broiler meat and egg production costs. Raw material prices can be volatile due to currency devaluations and production swings.

CONCLUSION

In sub-Saharan Africa, production and consumption of animal source foods like eggs, chicken, fish, beef and milk has been on the rise as a result of the strong economic growth of the last decade and greater disposable income.

Across the continent, investment in protein food production has surged to meet demand, mostly coming from the relatively well-off and burgeoning urban population. In Zambia, the commercial production and supply of ASFs is largely limited to a corridor from Lusaka in the center northward to the Copperbelt province bordering DRC where the urban population is concentrated and percentage of population below the poverty line is much less.

By focusing on easier to reach city dwellers, are commercial processors missing an opportunity to profitably meet the protein needs of smallholder farm households that are typically underserved by the food industry?

Zambia, which as a lower middle-income country is a step higher up the development ladder than most other sub-Saharan countries, would seem to show that there is much room for corporate players to extend their marketing and distribution strategies to encompass more of the rural poor. WG

David McKee's grain industry consultancy, Key International LLC, provides market research, feasibility analysis, technical studies and project guidance to companies and organizations. He may be reached at davidmckee59@msn.com.