Transforming African agriculture through sustainable intensification *March 2015*

Agribusiness roles in supplying agricultural industrial by-products in Africa RISING Ethiopia districts

To develop the dairy and ruminants value chains, mixing agricultural industrial by-products (AIB) with roughages is a promising option to improve milk and meat production. The most common AIBs are wheat bran, oilcake and pulses bran, which are by-products from the processing of respectively wheat into flour, oil seeds into oil and pulses into flour or cracked seeds. This brief reports the results of the Africa RISING rapid agribusiness assessment study conducted under the leadership of CIAT and ILRI in 2014.The rapid value chain study conducted in the 4 Africa RISING sites indicated that wheat and pulses are grown in substantial quantities in all 4 sites, while oilseeds are only significant in Sinana.

Table 1. Acreage and production of wheat, pulses and oil seed crops in the 4 Africa RISING sites

Crop	Endamehoni	Basona Worena	Lemo	Sinana
Wheat acreage (ha)	4,635	5,290	10,392	47,223
Wheat prod (tons)	16,686	8,303	29,097	174,703
Pulses acreage (ha)	6,547	2,178	2,450	5,831
Pulse prod. (tons)	11,785	3,535	5898	5,841
Oil seed acreage (ha)				3,911
Oilseed prod. (tons)				5,017

Source: Woreda offices/personal communications 2014.

The quantity of by-products obtained from these crops depends on the processing methods i.e. the more refined the processing method, the more separation and more by-products. In practice this translates into the highest amount of by-products being produced from commercial processing as compared to home processing or processing by wheat/pulses grinding mills.

The study in the 4 Africa RISING sites showed the presence of commercial wheat processing businesses (private and Unions), except in Endamehoni – since all wheat is processed commercially in neighbouring Alamata. Commercial processing of pulses was only observed in Basona Worena, where traders had organized themselves into a cooperative, which processed the various pulses crops for their members at a fee. The traders were then able to sell the bran commercially to ox fatteners outside the district. Commercial processing of oilseeds was only observed in Sinana.

Photo: Faba bean bran. Photo credit: ILRI\Dirk Hoekstra

The wheat bran produced by Union-owned wheat flour mills in Basona Worena and Lemo were used to produce feed mixes for dairy and fattening. A small feed processing mill was also developed in Endamehoni by the dairy Union - all the ingredients were imported from outside. On the other hand, in Sinana, which has an abundance of by-products produced by privately owned businesses, no feed processing factory was observed. It was noted that the Union operated feed processing businesses had been established/supported by ACDI/VOCA in the past.

Individual agricultural by-products and feed mixtures are sold to retailers (private or primary cooperatives) and large commercial producers/consumers including dairy cooperatives, private farms and research institutions.

Demand for AIBs is limited and seasonal, which appears to be governed by the seasonal availability of green fodder or lack thereof. Furthermore, demand was limited because of the high price and also because of lack of awareness/information on the economic benefit of feeding appropriate rations

Table 2. Retail price (Birr) ranges of AIB per kg in Africa RISING sites (in EtB).

AIB	Endamehoni	Basona Worena	Lemo	Sinana
Wheat bran	4	2.8 – 3.25	2.2–3.4	2.1–2.8
Pulses bran	NA	2.5	NA	NA
Oilcake	5	3.28	NA	5.1–6.1
Dairy mix	4.92	4.0	4.2 – 5.0	NA
Fattening mix	4.68	4.0	5.0	NA

Source: Africa RISING value chain reports 2014.

Recommendations

Based on these findings the following action interventions or research are proposed.

- To increase demand for AIBs, awareness creation and demonstration of the use of AIBs for dairy farmers and fatteners should be undertaken. Such development activities should be accompanied with appropriate feed formulation based on AIB and local available seasonal feed resources. Cost-benefit analysis of the different feeding options should be conducted by monitoring and evaluation of selected farmers or on-station trials.
- Once demand or interest has been created, efforts should be made to reduce prices. The latter may be achieved through collective action for bulk purchase by primary cooperatives and or producer groups from the producers of AIB.
- Another option is to increase production of AIBs at village and district level. A rapid assessment study on milling and grinding practices at household and village level is proposed to determine by-product output and use. Based on the findings, changes in milling/grinding practices and AIB use can be tested to increase volumes of by-products for livestock production. Based on the results of these studies, different district level AIB production and use scenarios can be prepared for scaling out purposes

The Africa Research In Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government's Feed the Future initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.

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