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Supporting circular economy through crop-livestock increased integration in North Western Vietnam

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Crop-livestock integration is a major pathway towards a greener and more circular economy. This is particularly true in northwestern Vietnam mountainous areas, where livestock, notably large ruminants, and perennial crops are both seen as major pillars of local agricultural development strategies. Livestock development is currently under pressure in a context of animal roaming restrictions, and scarcity of land for animal feed production or collection. The rapid expansion of perennial crops raises also the issue of farmers increased dependency to external inputs, notably fertilizers.

Silage feed can be made from a diversity of forage material, including agricultural by-products with little or no current use such as cassava stems and leaves, and stored for periods when feeds are less available or farmers busy with other activities. Compost is decomposed organic matter from various sources including animal feces and crops residues. As compared to untreated manure, compost helps removing bad smell, killing weeds' seeds and some disease germs, and reducing the weight of the final organic product making it easier for farmers to transport and apply in their fields.

In Dien Bien Province, it is estimated that using 45% of cassava by-products into silage could cover up to 10% of large ruminants feed need during the four-month winter season. The increased collection and transformation of 40% of animal manure into quality compost could help recycling annually 11,000 tones of Nitrogen for crop production.

Silage and compost technologies are good examples of enhanced crop-livestock integration, and improved circular economy in agriculture. But they are labor, technically and financially intensive so that the uptake of such technologies following sole training is usually low without external supports for initial investments such as choppers, double -layer silage bags, and Efficient Microorganisms (EM).