CROP AND LIVESTOCK INTEGRATION TOWARDS HIGHER PRODUCTIVITY

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Why integrated farming?

Majority of farms in Sri Lanka are small in size and their number is about 1.6 million. The average farm size is about 2.5 acres. Livestock are reared in about 40% of the 1.6 million farms, (64,000 farms). 70% of the total national milk production is from 10% of the national dairy herd (in mid and up country areas) while 30% is collected from 90% of the national dairy herd. Thus only about 10% of the national dairy herd is reared at a specialized level (see Table 1).

TABLE 1 : Neat cattle and buffaloes

	Neat cattle		Buffaloes	
Zone	No.of Cows	Est.Prod. per cow/ day in pints	No.of cows	Est.Prod. per cow/ day in pints
Hill-country	12,000	12	11,000	-
Mid-country	24,000	10	8,000	2.0
Coconut Triangle	87,000	4	31,000	2.0
Wet-zone	40,000	4	5,000	3.0
Dry zone	184,000	2	60,000	2.5

Animal power can be utilized for ploughing, harrowing etc. to reduce the production costs. Animal power is a valuable source of energy to the rural farmers. A pair of buffaloes easily plough 1/2 acre of paddy land per day. A more active pair of draught cattle (such as Khillari, Kangayam and Hariyana) can plough upto about .75 acres of paddy land per day.

Most of the buffaloes belong to owners or cultivators of paddy fields. These animals are reared to be used for tillage operations and threshing paddy. Owners of coconut lands rear cattle, sheep or goats for controlling weeds (by grazing animals) and to get manure for the crops grown on these lands.

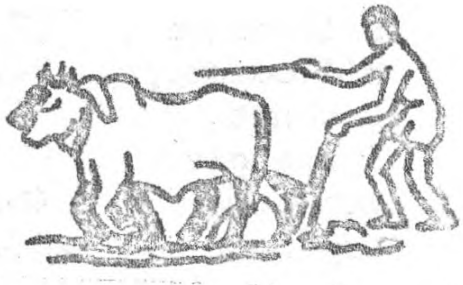
The foregoing facts indicate that crop and live stock integration exists at the grass root level. This situtation may continue in the future, inspite of land fragmentation. Increasing both the crop and livestock output per unit area depends on well planned systems of crop and livestock integration. To achieve the expected progress in agriculture in Sri Lanka, the planner should recognize the importance of crop and livestock integration.

Advantages of crop and livestock integration

1: Animal power is readily available on the farm.
2: More efficient use of farm labour
3: More efficient use of crop residue and by-products.
4: Farm resources can be used to maximum advantage.
5: Risks can be reduced.
6: It supplies manure for crops and fuel for the farm family through bio-gas and firewood.
7: Increased production of (much needed) animal protein.
8: Increased rural family income.

Animal power for farming.

Animal power is a valuable source of energy in rural farms for tillage operations, (ploughing etc) threshing and transport.



To reduce dependence on tractors, draught power of local cattle should be improved by implementation of an efficient, organized breeding programme (involving superior draught breeds) to produce dual purpose -cross bred - draught animals. Shortage of animal power can be overcome by extensive use of the single animal plough.

To make more efficient use of farm labour

Studies done in Philippines have revealed that an average farm operator idles for about 2-3 months of the year. In the farmers family there will be unutilized labour. Underutilized or unused labour in the form of family can be used better in an integrated farming system. If dual purpose animals are reared draught power can be obtained from males, while milk can be obtained from females. Rearing goats, chicken ducks, pigs, rabbits etc. can provide ample opportunities for the whole farm family to be kept profitably active throughout the year.

Better use of farm by-products and crop residue

Livestock can be fed on crop residues such as crops rice, straw, corn, stover, sweet potato vines, cassava leaves etc. The nutrients in straw and discarded potato vines have no market value, but are good sources of feed for animals. By-products of rice, sugar cane and brewery industry can be used for livestock feed Wild grasses such as Guinea A, Emperata and fox tail can be also used as livestock feed.

Efficient use of resources

Intercropping perennial crops such as coconut, mango, cashew etc, with suitable grasses and live fences of Ipil Ipil or Glyricidia to use sunlight, moisture and soil nutrients-unutilized by crop yields appreciable quantities of feed for the farm animals. Immediately after harvesting short- term crops, forage legumes or root crops can be planted to utilise residual soil moisture as well as sun light and untapped soil nutrients. Continuous cropping done judiciously provides a steady income to the farmer.

Readily available animal power on the farm will help farmers to adopt intensive cropping patterns and maximise their income

Integration as a farm insurance

Some of the risks of crop production (drought, floods, price manipulations etc) are beyond the farmers control. But integrating crops with live stock paves way for two avenues of income. Even if a crop fails, still there remains another source of income (from livestock) for him to tide over the difficult period.

Supply of manure and fuel

Livestock efficiently convert crop residues into valuable animal products (milk, meat, eggs etc) for consumption or for sale, and also manure for the crops. Animal manure and crop residues unfit for livestock feed can be converted into biogas that provides power and fueld for household use.Efficient from the bio-gas unit can be used as manure (to boost crop yields).

Increased production of animal protein

Protein malnutrition, a serious problem in Sri Lanka (due to diets based primarily on cereals and vegetables) can be rectified by producing and con suming milk, meat and eggs on the farm. Integration helps a farmer to do that at a very low cost.

Increased rural family income

Raising back yard chicken, rabbits, ducks, goats or sheep can appreciably supplement farm family income. Thus integration of crop production with livestock production, while eliminating risks of crop monoculture, creates more avenues of income for the whole family.

Crop or livestock output per unit area can be increased by well planned systems of crop and live stock integration. To achieve agricultural develop ment, crop and livestock integration can make a very significant contribution.

Possible areas of crop livestock integration:

(a) With coconut: About 50% of the total coconut area (1.1 million acres) is under small holdings and is not intenseively cultivated. These lands have a good potential for pasture or forage production. Research work has proved that cocomut production could be increased by integration of coconut lands with cattle and/or buffaloes. If 300,000 acres of coconut land is cultivated under improved pasture to carry one cow having a production potential of 10 pints per cow per day equivalent per acre, a production of 3,000,000 pints of milk per day can be achieved. (At present production of milk in Sri Lanka is about 650,000 pints per day.

(b) With minor export crops: crops such as pepper and vanilla require supports while coffee and cocoa require shade. Glyricidia and Erythryna grown for these purposes, produce valuable fodder for goats. If shade tolerant grasses are grown in clove plantations, the fodder produced can be used to feed goats and sheep.

(c) Agro-forestry: In reforestation programmes shade loving fodder trees and tree legumes should be included. They can be periodically lopped and fed to goats and cattle. It is well known that a definite complementary relationship exists between crop and livestock production. True potentials of integration must be exploited fully. This will positively help rural economy to progress.

The planner should focus his attention on "Integration" and not dis-integration of agriculture, if Sri Lanka is to achive an appreciable and adequate progress in crop and live stock.

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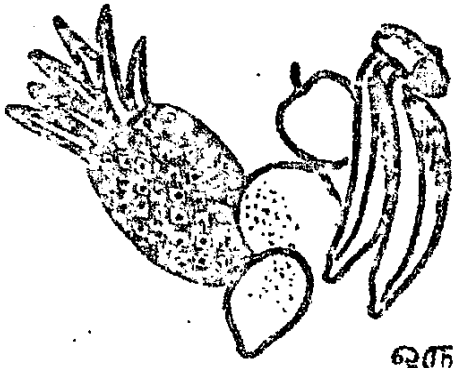
බෝග වගාකරන ගොවිපලවල්වල උචිත සත්ව වර්ග ඇතිකිරීමෙන්, ආදායම් වැඩිකරගත හැක. ගවයන්, මීගවයන්, හාවුන්, මීරිදිය මසුන්, කුකුළන්, තාරාවන්, මී මැස්සන්, එල්ලූ බැටලූ වර්ග අතරින් ඔබේ ගොවිපලට සුදුසු සත්ව වර්ග තෝරාගන්න. සත්ව මල මූත්‍ර පොහොර වශයෙනුත් ජීව වායුව නිපදවීමටත් ප්‍රයෝජනවත්ය. බෝගවගාවල සුන්බුන්, අපතේ දමන බතල වැල් පිදුරු වීයලි කොල එලූ ගව සතුන්ට ආහාර වශයෙන් දීමෙන් අපතේ යන ද්‍රව්‍ය කිරි, මස්, බිත්තර වැනි ද්‍රව්‍ය නිෂ්පාදනයට උපයෝගි කරගත හැක. සිසෑම, කරත්ත ඇදීම, ගොයම් පැගීම වැනි කටයුතු සඳහා ට්‍රැක්ටර් වෙනුවට ඔබේම ගොවිපලේ ගවයන් යොදා ගැනීමෙන් නිෂ්පාදන වියදම අඩුවේ. ගොවිපවුලේ ශ්‍රමය ගොවිපලේ සම්පත්, ඉතා ඵලදායක ලෙස උපයෝගි කරගැනීමට බෝගවගාවට අමතරව සතුන් ඇති කිරීම, අතිශයින් ප්‍රයෝජනවත්වේ.



ඉරුමූණුප්පට්ට පශු ධන

පයිරිණුම්, කෘෂි නඩෙ උර්පත්තියිණුම් මෙලතික වරුමානම් පෙරුතර්කු, මර්ත්තෙ, එරුමෙ, මුයල්, පරවෙ, තාරා, ආටු, අල්ලතු සෙම්මරි ආටු පොන්රවෙකළෙ වළර්ත්තු මිරුක උර්පත්තිප් පොරුට්කළෙ විර්පතෙ සෙය්වතාලුම්, පන්ණෙ එරුක්කළෙ විර්පතෙ සෙය්වතාලුම් මෙලතික වරුමානත්තෙ අතිකරික්කලාම්. පයිරික්කූලම්, වෙක්කෝල්, පුර්කළ් මර්රුම් චිල පයිර්කළිල් අවටෙ සෙය්ත පකුතිකළෙ මාට්ටුත් තීවණමාකප් පාවික්කප්පටුකින්රතු. නිලම් පණ්පටුත්තවුක්කුම්, පෝක්කුවරත්තුක්කුම් පාවිප්පතිනාල් පණ්ණෙ චෙලවුකළෙ කුරෙක්කුම්. මිරුකඞ්කළෙ වළර්ප්පතාලුම්, පණ්ණෙත් තොළිලාළර්කළෙයුම්, පණ්ණෙ මූල වළങ්කළෙයුම් මිකත් කරිත්තමාක උපයෝකික්කලාම්.