

Factors influencing the adoption of fodder production techniques by milk producers in Dhankuta District, Eastern Nepal

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Introduction Many districts are food-deficient in Nepal. Increased milk consumption could improve human health and nutrition, while milk sales can provide families with a valuable source of income. However, milk production in Nepal is low, mainly because of the poor nutritional status of livestock, which can be attributed in part to a fodder deficit. However there is potential to increase fodder production, and some innovative fodder production techniques have been tried and proven locally. These include planting of fodder trees, fodder grasses and fodder crops. As the level of adoption of these techniques is variable, a survey was undertaken to quantify adoption levels by milk producers in Eastern Nepal, together with factors influencing adoption levels.

Materials and methods This survey, in which 68 farmers were questioned, was conducted at the Milk Collection Centres of Chungbang, Hattikarka and Hille (Dhankuta District, Eastern Nepal). For each of 3 forage production technologies identified, farmers were classified as: (1) not aware of the technology, (2) aware of but not having tried the technology, (3) Having tried, but subsequently dropped the technology, (4) Having tried, but uncertain about adoption, and (5) Having definitely adopted the technology. Farmers' situational characteristics (farm size, number of milk-producing livestock and family size), personal characteristics (age of head of household, education level and economic status) and sociological characteristics (local-cosmopolitan, frequency of listening to agricultural news on the radio, degree of extension contact) were identified also. SPSS statistical package was used to test relationships between level of adoption of techniques and 'farmer characteristics'.

Results The degree of adoption of fodder tree and fodder grass production was high (85.3 and 79.4%, respectively). Most of the remaining respondents were aware of, but had not tried the technology (Table 1). Only 35.3% of farmers had adopted the practice of fodder crop planting, with 41.2% aware of the technology, but not having tried it. Fodder crops differ from fodder trees and fodder grasses in that their planting often competes directly with the production of human food resources. For example, while fodder grasses and fodder trees will normally be planted on terrace risers and areas of ground unsuitable for cultivation, fodder crops are grown on land that could otherwise be used for producing food for direct human consumption.

Table 1 Percentage adoption of forage production techniques (n=68)

	1) Not aware of technology	2) Aware of, but not tried	3) Tried but dropped	4) Tried but uncertain	5) Adopted
Fodder tree planting	1.5	13.2	0	0	85.3
Fodder grass planting	1.5	10.3	4.4	4.4	79.4
Fodder crop planting	16.2	41.2	4.4	2.9	35.3

A number of significant relationships were identified between the level of adoption of these innovative techniques, and situational personal and sociological characteristics, as follows: the degree of adoption of fodder tree planting was positively related to farm size ($P<0.05$), family size ($P<0.01$) and frequency of listening to agricultural news on the radio ($P<0.01$), while the degree of adoption of fodder grass planting was positively related to frequency of listening to agricultural news on the radio ($P<0.05$). As regards the latter, the survey did not reveal if this was a direct 'cause and effect' relationship, or if farmers who listen to the agricultural news more frequently are more innovative, and as such, more likely to adopt fodder production techniques. There was also a positive correlation between the adoption score for fodder crop planting and the number of milk-producing livestock on a farm ($P<0.01$). This may reflect the fact that farmers with large numbers of livestock are likely to have sufficient land for the production of their direct food needs, and as such, may have excess land available for fodder crop production.

Conclusions The level of farmer adoption of fodder tree and fodder grass planting was high, while the level of adoption of fodder crop planting was considerably less. The latter is likely due to fodder crop production as a livestock feed competing directly with the production of human food resources.

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