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## Effect of Intercropping Clover with Wheat on Grain Yield and their Fodder Production on Dairy Goats Performance

ALAA AHMED<sup>1</sup>, AKI KOBOOTA<sup>2</sup>

<sup>1</sup>*Agricultural Research Center, Animal Production Research Institute, Egypt*

<sup>2</sup>*University of Tsukuba, Crop Science, Japan*

### Abstract

Legume intercropping of cereals is a commonly adopted practice when soil fertility is limited. This study evaluated the fodder production of early cuts of mono cropping Wheat (W), Egyptian clover (C), and intercropping both crops (CW) on final wheat grain yield, fodder dry matter yield, fodder nutritive value, and milk yield and its composition. The first cut at the level of 15 cm above ground at 69 days after sowing was to evaluate the systems in providing animal feed at an early production stage. The fodder was preserved as silage (clover silage (CS), wheat silage (WS) or wheat & clover mixture silage (CWS) and further tested in goat rations. After the early cut, all crops (C, W and CW), were left till final grain harvest. Sixteen lactating goats with a live body weight of  $41.0 \pm 1.3$  kg were divided into four groups. Clover hay was completely replaced through one of the silages: i) concentrate feed mixture (CFM) with clover hay (control group, CH), ii) CFM with clover silage (CS), iii) CFM with wheat silage (WS) and iv) CFM with wheat & clover mixture silage (CWS).

Data collected indicated that intercropping significantly ( $p < 0.01$ ) yielded more fodder than mono cropping (+27%) but slightly depressed grain yields (-4%) as compared to mono wheat cropping. The nutritive value of clover silage (CS) as crude protein (CP) was significantly ( $p < 0.01$ ) higher (12.5% DM) than CWS (10.6% DM). NDF and DM degradability of CWS was significantly ( $P < 0.05$ ) higher (21.2 and 13.5%) as compared to CS and WS. The lowest intake (DMI) was recorded for the CH group ( $422 \text{ g DM d}^{-1}$ ). The main results showed that goats fed ration with CWS recorded the highest ( $p < 0.01$ ) average daily milk yield ( $1.23 \text{ kg d}^{-1}$ ). The lowest milk yield was recorded for group CH group ( $0.94 \text{ kg d}^{-1}$ ). In conclusion, intercropping legumes with cereals helps to improve fodder DM yield and increase the productivity of dairy goats. It further reduces the competition between human and animal food production.

**Keywords:** Average milk yield, clover, dry matter intake, grain yield, intercropping, milk composition, wheat