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FODDER PRODUCTION POTENTIAL OF DIFFERENT MAIZE LEGUME MIXTURES UNDER GRADED LEVELS OF NUTRITION*

Intercropping maize with different legumes is generally found to increase the total fodder yield and the quality of the fodder produced. Sole crops of many legumes were found to grow successfully under Kerala conditions but their production potential under maize-legume associations has not been investigated. Adequate fertilizer application is an important factor for increasing fodder yield. The nutritiona requirements of maize and legumes as monocrops have been studied but their nutritional requirements when grown in association need to be worked out. The present trial was taken up to study the fodder yielding ability of different maize-lagume combinations under different levels of nutrition.

The experiment was ccnducted in the Agricultural College Farm, Vellayani, Kerala during the rainy season of 1980. The soil was red loam with a total nitrogen content of 0.05 percent, available phosphorus 19.6 ppm and available potassium 11.2 ppm and a pH of 5.6. The trial was laid out in a randomised block design replicated thrice. The treatments consisted of factorial combinations of three legumes as intercrops in maize viz , cowpea, velvet bean and blackgram and five fertilizer levels i. e , 80:40:40, 100:50:50, 120:60:60, 140:70:70 and 160:80:80 kg of N, P_2O_5 and K_2O/ha. Observations were made on green fodder yield of individual crops in the combinations and their combined total yields.

The results on the green fodder yield of the component crops and the total yield of the crop combinations are given in Table 1.

It could *be* seen from Table 1 that different legume associations and fertilizer levels have shown significant differences in the green fodder yield of maize. Maize-black gram association recorded the maximum fodder yield of maize followed by maize-velvet bean combination. The yield of maize was maximum with the fertilizer level of 140:70:70 kg N, P_2O_5 and K_2O/ha. The yield attributing characters of maize like height of plants, number of leaves per plant and leaf area index were found to be the highest under maize-black gram association when compared to other legume intercrops. Similar observations were also reported by Gangwar and Kalra (1978). The high yield of maize may be due to the fact that the intercrop (blackgram) gave only a very low yield (3 t/ha) probably due to subdued root competition between them.

There was significant difference in green fodder yield among the legume intercrops studied while the effect of fertilizer levels and their interactions were not significant. Velvet bean produced maximum green matter yield followed by cowpea and the lowest yield was recorded by blackgram. Singh and Relwani (1978) also reported increased green fodder yield of velvet bean when grown in association with maize than other legumes.

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Table 1

Green fodder yield of component crops and crop mixtures

	Maize (t/ha)	Legume (t/ha)	Maize + legume (t/ha)
Crop mixture			
Maize+cowpea	16.5	11.8	28.3
Maize+velvetbean	19.3	14,1	33.4
Maize + blackgram	20,7	3.0	23.7
SEm+	1.03	0.57	1.11
CD (0.05)	2.98	1.64	3.23
Fertilizer levels			
80:40:40	14.9	8.1	23.0
100:50:50	15.5	9.2	24.7
120:60:60	18.4	10,3	28.7
140:70:70	23.1	9.8	32.9
160:80:80	22.3	10.8	33.1
SEm ±	1.33	0.73	1.44
CD (0.05)	3.85	NS	4.17

The different legumes and fertilizer levels have significantly influenced the combined total green fodder yield of maize and legumes. The maize-velvet bean crop combination recorded the highest combined yield of green fodder and it was significantly superior to others. The lowest combined fodder yield was produced by maize–blackgram association. Among the fertilizer levels 160:80:80 kg N, P_2O_5 and K_2O/ha gave the highest combined yield of fodder and this level was on par with 140:70:70 kg N, P_2O_5 and K_2O/ha.

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സംഗ്രഹം

മക്കച്ചോളത്തോടൊപ്പം വെൽവെറ്റ്ബീൻ ഇടവിളയായി കൃഷിചെയ്യുകയും, ഹെക്ടറിന് 140:70:70 കി.ഗ്രാം പാക്യജനകം, ഭാവഹം, ക്ഷാരം എന്ന ക്രമത്തിൽ രാസവളപ്രയോഗം നടത്തുകയും ചെയ്യുന്നത് കൂടുതൽ കാലിത്തീറ്റയുൽപാദിപ്പിക്കുന്നതിനുതകുമെന്ന് വെള്ളായണി കാർഷിക കോളേജിൽ നടത്തിയ ഒരു പരീക്ഷണത്തിൽ നിന്നു വ്യക്തമായി.

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