

## Effect of an intercropping system for different fodder crop production under catchment area of Penganga river

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### Abstract:

The experiment were conducted under the catchment area of Penganga river at Himayatnagar, Dist. Nanded during 2002-2003. During the experiment apart from the use of fertilizer to increase yield of fodder crop. Another alternative its cultivation leguminous and non-leguminous fodder crop in an intercropping system.

The land equivalent ratio indicated that the intercropping between Maize and Lucerne 1:1 proportion dominated over 1:2. The result obtained clearly indicated that the fodder crop gives higher production.

**Keywords:** Maize, Lucerne, Green fodder, Dry matter and Crude protein.

### Introduction:

In India the importance of intercropping highlighted almost 50 years ago in a very comprehensive review by Aiyer 1949. Andrews and Kassi (1975) Defined intercropping as growing two or more crops simultaneously on the same land in separated rows. Due to intercropping system the simultaneously cultivation of two or more crops which helps to

decrease the growth of weeds. Lipman (1973) was perhaps the first to have suggested that the soluble nitrogenous compound are utilized by adjoining porous root wall of non-legumes. When the grown in associated with legumes the nitrogen percentage intercropping system between Maize and Lucerne 1:2 is higher than 1:1. Maize was sown with Lucerne as an intercrop 1:1 ratio. The nitrogen percentage was 1.65 during 2002. In 2003 the nitrogen percentage of Maize is 1.51. In an intercropping system 1:1 and 1:2 in 2002 and 2003 Maize produce larger yield of green fodder as compared Lucerne.

### Materials and Methods:

The field experiments were conducted during June 2002 to November 2003 under the catchment area of Penganga river at Himayatnagar. A piece of land was prepared by ploughing and cross ploughing by adding compost 1400 kg/ha and divided in to quadrats. Each quadrats measure as 36 Sq. feet sowing was done by hand in rows 30 cm. apart. As per need all fodder crops were provided irrigation by sprinklers. Each experiment was replicated two times in randomized block design (RBD).

In present intercropping system, the legume and non-legume crops Maize (*Zea mays* L.) + Lucerne (*Medicago sativa*) sown in the first 1:1 and 1:2 proportion with alternate single rows of each crops. To ensure uniform spacing within rows, the gaps were filled with resowing shortly of either extra seedlings were thinned after emergency. The fodder crops were harvested early in the morning with the help of steel cutter and yield of fresh forage per quadrats was recorded. The sample of green forage chopped 2 to 3 cm small pieces and allow to dry a constant weight on electric oven at  $95^{\circ}\text{C} \pm 5$  for determination of dry matter (DM). Fodder yield from Maize and Lucerne under inter cropping system in 2002 and 2003 given below the table. Fodder yield from Maize and Lucerne under sole and intercropping system in 2002



Table 1.

Cropping System	Green fodder system (Kg/Hector)				
	% of DM	N % of DM	Green fodder	Dry matter	Crude protein
<b>Sole cropping</b>					
Maize	15.4	1.75	9372	1444	158
Lucerne	17.8	3.09	6243	1111	214
<b>Intercropping - 1:1</b>					
Maize	16.1	1.65	8801 (0.94)	1417 (0.98)	146 (0.02)
Lucerne	18.4	3.19	1678 (0.27)	309 (0.28)	61 (0.29)
Total			10479 (1.21)	4426 (1.26)	208 (1.21)
<b>Intercropping - 1:2</b>					
Maize	16.4	1.97	5342 (0.57)	876 (0.61)	108 (0.68)
Lucerne	17.9	2.61	2257 (0.35)	404 (0.36)	66 (0.31)
Total			7599 (1.92)	1280 (0.97)	174 (0.99)

Fodder yield from Maize and Lucerne under sole and intercropping system in 2003

Table 2.

Cropping System	Green fodder system (Kg/Hector)				
	% of DM	N % of DM	Green fodder	Dry matter	Crude protein
<b>Sole cropping</b>					
Maize	14	1.43	9697	1358	121
Lucerne	18.6	3.22	6331	1117	237
<b>Intercropping - 1:1</b>					
Maize	14.3	1.51	8922 (0.92)	1276 (0.94)	120 (0.99)
Lucerne	19.2	3.24	1631 (0.26)	313 (0.27)	63 (0.27)
Total			10533 (0.98)	1589 (1.21)	183 (1.26)
<b>Intercropping - 1:2</b>					
Maize	14.7	1.81	5437 (0.56)	799 (0.59)	90 (0.74)
Lucerne	18.6	2.65	2241 (0.35)	416 (0.35)	69 (0.29)
Total			7678 (1.91)	1215 (0.94)	149 (1.00)

**Result and Conclusion :**

The above result shows that different percentage of dry matter and crude protein in 2002 and 2003. In the ratio of 1:1 and 1:2 Maize and Lucerne. The intercropping between Maize and Lucerne 1:1 proportion of the yield of green fodder (GF), dry matter (DM) and crude protein (CP) of Maize was 8801, 1417, 146 kg/ha in the year 2002 while in 2003 the yield of GF, DM and CP was 8922, 1276 and 120 kg/ha respectively. The same proportion in the yield of GM, DM and CP Lucerne was 1678, 309, 61 kg/ha in year 2002 while in 2003 GM, DM and CP was 1631, 313 and 63 kg/ha respectively.

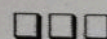
The intercropping between Maize and

Lucerne in the proportion (1:2) yield of green fodder, dry matter and crude protein Maize was 4352, 876 and 108 kg/ha in year 2002 while in the year 2003 the yield was 537, 799 and 90 kg/ha.

The same proportion in the yield of GF, DM and CP of Lucerne was 2257, 404 and 60 kg/ha in 2002 while in 2003 the GF, DM and CP was 2241, 416 and 69 kg/ha respectively. The result clearly shows that GF, DM and CP was higher in intercropping Maize 1:1 than 1:2 in Lucerne 1:2 showed yield higher than 1:1 in both year. The intercropping system is more beneficial because increase fertility of soil, pest control and weed also control.

**Bibliography:**

1. Aiyer, A.K.Y.N.(1949) Indian J. Agri. Sci. 19:439
2. Andrews, D.J. and Kaseem, A.H. (1975), 'Importance of multiple cropping in increasing world supplies' Multiple Agron Tennessee, 24-29.
3. Lipman J.G. (1913) J.am.soc. Ageron. 5:72.



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