

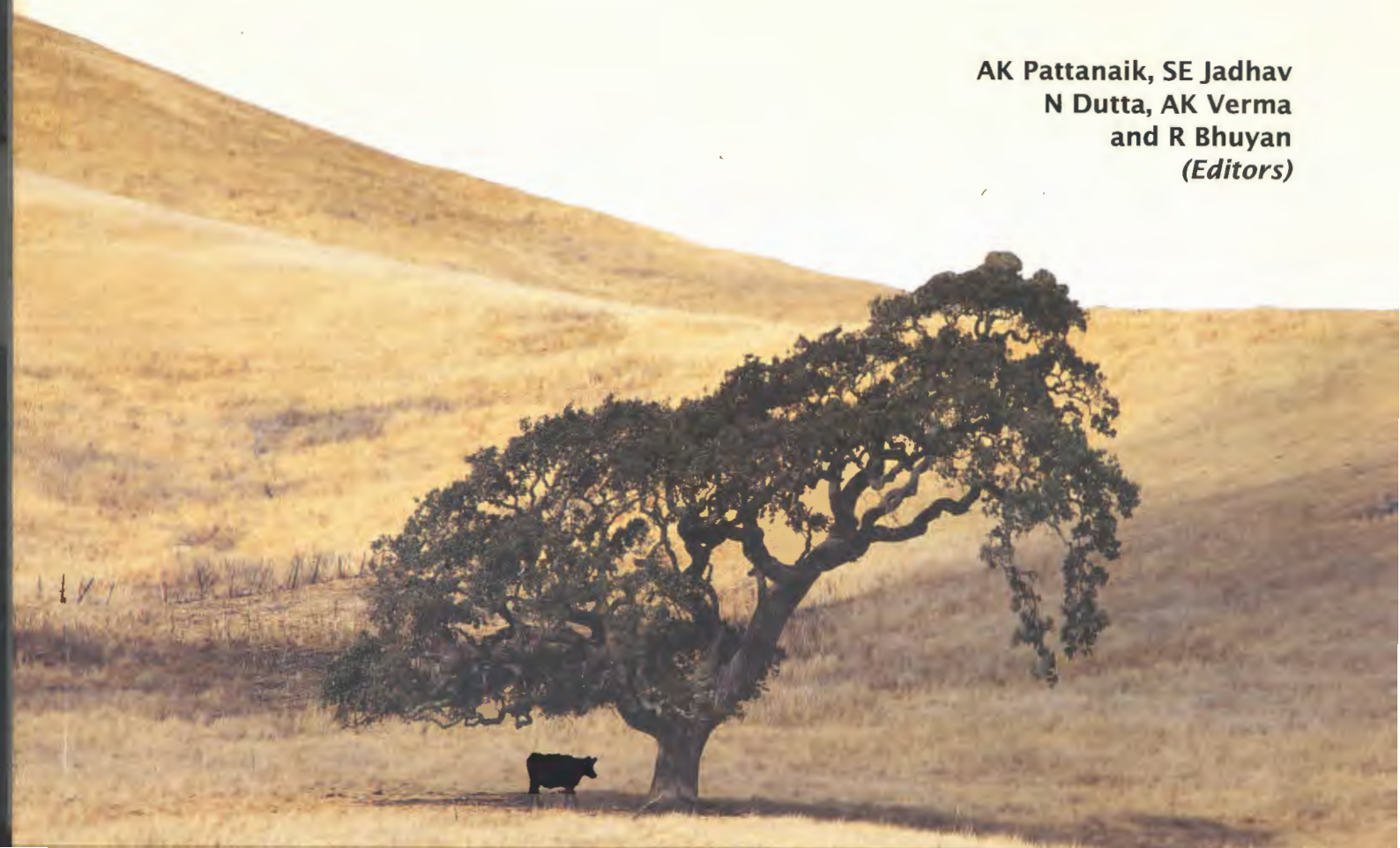
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ECO-RESPONSIVE FEEDING AND NUTRITION

LINKING LIVESTOCK AND LIVELIHOOD

ABSTRACT PAPERS

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Variation in Mungbean for Grain Yield, Haulm Yield and Forage Quality

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SUMMARY: Mungbean (*Vigna radiata* (L.) R. Wilczek) is a legume crop that can be used for grain, forage as well as for green manure. Significant variation was observed for forage quality traits such as nitrogen content, acid detergent fibre and metabolisable energy in 26 mungbean lines grown in Hyderabad, India during 2013. Mungbean lines such as VC 6510-151-1 and ML 818 with good grain yield and forage quality were identified for further testing.

Keywords: Dual purpose, Fodder legume, Food legume

BACKGROUND

Mungbean (*Vigna radiata* (L.) R. Wilczek) is a protein rich, short duration (about 60-65 days) grain legume that fits in well into the major cereal cropping systems of South and Southeast Asia (Nair *et al.* 2013). Mungbean is also utilised as a forage cum grain crop in countries like Egypt (Abd El-Salam *et al.* 2013). The use of crop residues of mungbean after grain harvest is also prevalent in some countries. Here we explore the variation for grain yield and forage quality traits in mungbean lines grown in Hyderabad, India.

METHODOLOGY

Twenty six mungbean lines were sown in a randomised block design with three replicates in Hyderabad, India during June 2013 (*Kharif* season). Data on pod yield/plant (PY), grain yield/plant (GY) and haulm yield/plant (HY) were recorded at crop maturity stage. In addition, nitrogen content (N), neutral detergent fibre (NDF), acid detergent fibre (ADF), acid detergent lignin (ADL), metabolisable energy (ME) and *in vitro* organic matter digestibility (IVOMD) were determined by Near-Infrared Reflectance method. Four lines (3 best (VC 6510-151-1, ML 818 and ML 1628) and 1 poor

(NM 94) based on performance during 2013) were grown during June 2014 (*Kharif* season) in the same location adopting similar experimental design as in 2013. A combined analysis of the data from 2013 and 2014 was conducted for the above mentioned traits. Broad sense heritability estimates were worked for the traits.

RESULTS

Significant ($P < 0.05$) variation was found for nitrogen content, acid detergent fibre and metabolisable energy among the 26 mungbean lines during (Table 1). With regard to seed yield, KPS-2, VC 6510-151-1 and Harsha were the top performers. VC 6469-12-3-4A, VC 6510-151-1 and VC 6512-6A recorded the highest values for forage yield. In terms of nitrogen content, ML 818, VC 3890A and ML 613 showed the best performance. VC 6510-151-1, ML 818 and PAU 911 recorded the highest values for IVOMD. Grain yield showed significant ($P = 0.05$) positive association with haulm yield and IVOMD. During 2014, line $\times$ year interaction was significant for NDF, ADF, ADL, ME and IVOMD. Haulm yield showed high heritability (0.9) and moderate heritability was recorded for nitrogen content (0.6).

Table 1. Variation among mungbean lines grown in Hyderabad, India during 2013 for grain yield, haulm yield and forage quality

Line	N	NDF	ADF	ADL	ME	IVOMD	HY kg/ha	PY kg/ha	GY kg/ha
Barimung 4	2.7	35.3	27.7	6.1	8.2	60.1	845.6	1238.7	722.6
HARSHA	2.8	32.9	25.4	5.7	8.3	61.0	848.9	1676.8	1076.1
KPS 1	2.6	38.6	29.5	7.0	8.0	58.7	623.3	1159.6	730.9
KPS 2	2.4	38.3	29.3	6.5	8.5	60.8	1093.3	2028.0	1198.6
ML 1628	2.7	32.6	25.7	5.7	8.4	61.4	1098.9	1702.2	1071.2
ML 1666	2.8	30.4	23.8	5.0	8.2	60.6	1008.9	1755.3	1052.5
ML 1299	2.6	33.1	26.0	5.7	8.2	60.1	626.7	1103.1	674.5
NM 92	2.6	39.1	29.9	7.2	7.9	58.0	992.2	1788.0	1054.7
NM 94	2.5	45.0	32.5	8.4	7.8	57.4	291.1	1148.7	700.5
PAU 911	2.5	35.4	27.7	5.9	8.7	62.1	553.3	1238.4	801.5
VC 3890A	2.9	33.9	24.8	5.9	8.3	61.0	610.0	985.9	541.2
VC 6173B-13P	2.6	35.7	26.7	6.2	8.1	59.3	835.6	1231.5	630.3
VC 6372(45-8-1)	2.3	40.9	30.3	6.9	8.1	58.1	525.6	1235.9	715.3
VC 6469-12-3-4A	2.6	34.8	27.8	6.3	8.2	60.4	1191.1	1641.7	1013.0
VC 6486-10-51	2.3	39.3	32.5	7.4	8.2	59.8	823.3	1409.4	825.1
VC 6489-9-1	2.6	35.5	26.7	5.9	8.3	60.1	975.6	1274.6	894.9
VC 6493-44-1	2.5	35.5	27.5	6.0	8.3	60.3	868.9	1210.2	687.4
VC 6510-151-1	2.6	33.5	24.7	5.9	8.9	63.8	1137.8	1781.2	1140.0
VC 6512-6A	2.6	34.9	25.6	5.7	8.4	61.1	1123.3	1405.6	935.3
VO 1352B-G	2.3	39.6	29.2	6.7	8.3	59.7	947.8	1583.0	1059.3
VO 6381A-G	2.6	33.4	26.9	5.5	8.5	61.6	1097.8	1321.3	867.4
P	0.04	0.06	0.06	0.05	0.03	0.01	0.25	0.70	0.41

CONCLUSION

The study showed the potential for selection of mungbean lines for haulm yield and nitrogen content.

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