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Influence of Weed Green Manure on Production and Nutrient Content of Maize Cultivar

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ABSTRACT

Field experiment was conducted to evaluate the effect of green manure on nutrient content and yield of Maize. The experimental design was a randomized block design (RBD) with four replications. Dry matter content (%) was highest in weed species Tephrosia hamiltoni (18.0 %) followed by Crotolaria notonii, (16.8 %), Cassia (16.0 %). Howeever trend was not alike in case of phosphorus and potassium content. Maximum (0.144%) phosphorus and (1.3%) potassium was recorded in case of weed species Cassia tora. At the age of 104 DAS, significantly maximum (304 cm) plant height was observed in the plot treated with green manure of Cassia tora, followed by (297cm) Tephrosia hamiltoni and minimum (185 cm) in control. The highest total reducing sugar content (4.729 g) was noticed in the treatment of Achyranthe aspera followed by Tephrosia hamiltoni (3.958g) and lowest in control (0.428g). Results revealed that weed green manures can not only be used as source of plant nutrients but it can also increase the sugar content in sugar producing crops such as sugar cane, sugar beet, grapes, sweet sorghum and other horticultural crop.

Keywords: CN Ratio, Maize, Reducing sugar Urea, Weed manure

INTRODUCTION

Maize (*Zea mays* L.) is one of the most important cereal crops grown in many country It plays a significant role in human and livestock nutrition worldwide. It is currently grown in about 144 mha. Some of maize cultivars are used solely for seed production, however some of them can be used for dual purpose, but very few can be grown for green fodder purpose. The maize variety 'African tall' is very popular in India for fodder purpose. Now a day, there is an urgent need to educate our farmers about this open treasure of nature (weed plants) which we are wasting carelessly at high rate. Environmental hazards associated with modern agriculture technique in modern world have resulted in endangerment of wild species and pollution of ground and surface water (Dick, 1992). Generally, organic matter content in soil is minimal and is receding to alarming levels (Singh *et al.*, 2012). Additions of organic amendments (composts) can reverse losses in soil fertility and replace the lack of traditional cow manure applications in crop production systems (Delas, 1989). The function of green manure crop is to add organic matter to the soil (Kipps, 1970). Green manuring can be defined as a practice of ploughing or turning into the soil undecomposed green plant tissues for the purpose of improving physical structure as well as fertility of the soil. Leguminous as well as non-leguminous plants or crops are used as green manure practiced to enrich soil nitrogen (Singh and Kumar, 2009). When organic matter is decomposed, the nitrogen bound in the organic matter is released first as ammonia. The ammonia may be absorbed by the plant or converted to nitrate. Apart from enrichment of soil nitrogen, green manuring enriches the phosphorus, calcium, sulphur and other mineral content of soil (Yewalkar *et al.*, 1977). Generally, agricultural systems depend exclusively on inorganic fertilizers to maintain elevated soil fertility since availability of cow dung manure is limited. Therefore new sources of organic material that supplement the balanced turnover of organic matter should be investigated. Compost utilization is a method

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of recovering soil organic matter content (Singh *et al.*, 2014 and Sequi, 1996). Compost can provide continuous supply of nutrients and improve efficiency of inorganic fertilizers (Bittenbender *et al.*, 1998; Ferreira and Cruz, 1992; Sikora, 1996).

Organic waste is a valuable raw material located at wrong place which can be rehabilitated into useful product by making use of appropriate processing technology (Sharma and Verma, 2001). In terrestrial ecosystems, the litter decomposition is an important functional process, governing the cycling of nutrients and thereby regulating the vegetative productivity. Moreover, litter is the main component of detritus food chain, which enters the decomposition subsystem and is broken down by an array of decomposing organisms. Freshly fallen leaves pass through several stages from surface litter to well decomposed humus partly mixed with mineral soil which contains 50 to 80% of the nutrients, releases back into the soil. Composting is the controlled decomposition of organic matter to a point where the product can be safely and beneficially used to improve crop productivity (Obeng and Wright, 1987). Composting can be done by various methods viz. aerobic, anaerobic, windrow, heap etc. Various weeds can be used for composting and vermicomposting effectively as nutrient source for various crops (Naikwade *et al.*, 2011a, Naikwade *et al.*, 2011b, Ghadge *et al.*, 2013). The effects of compost prepared from leaves by aerobic and anaerobic compost method have not been investigated in detail. In order to utilize the huge amount of leaf litter as valuable resource for composting, a study was conducted to investigate the influence on fodder maize yield and nutrient uptake.

MATERIALS AND METHODS

Experimental Site, Design and Treatments

A field experiment was conducted in the research farm at RUT farm, Devmurti, Jalna, Maharashtra (India) during the year 2013 and 2014. Pooled analysis was carryout for both the year. The design of experimental was randomized block design and treatments were replicated 4 times. The plot size for field experimentation was kept 3.6 x 3.6 m. The maize was sown at a row distance of 22.5 cm since it was grown for fodder purpose. The seed rate was 75 kg/ha. The field was irrigated and weeds were allowed to decompose. The fodder maize variety 'African tall' produced by National Seed Corporation Ltd. Beej Bhavan, Pusa Complex, New Delhi were use for this experiment. Six treatments were tested in this filed experimentation for two season during November to February each years, which includes 4 weeds green manure *i.e.* green manure *Achyranthes aspera;* green manure *Cassia tora;* green manure *Crotolaria notonii;* and green manure *Tephrosia hamiltoni* along with urea (chemical fertilizer) and control. The weeds species used in this experimentation as mentioned above were collected (uprooted) from road sides and field in the University campus. They were cut into small pieces as 4-6 inches (10-15 cm) by the traditional iron chaff cutter and buried in soil at 15 to 20 cm deep in the soil when maize were at 10% flowering stage. These weed green manure was applied at the rate of 13503 kg except in control and fertilizer treatments plots. 100 g of weed sample from each weed species was randomly collected from the heap in duplicate and kept in oven at 105^{o}C for drying. After drying the samples were used for the further analysis as percentage of dry matter, nitrogen, phosphorus, potassium, ash analysis, its C: N ratio etc.

Fertilizer Applications and Plant Sampling

Minimum use of fertilizer was made. Fertilizers were applied as NPK through urea, single super phosphate and muriate of potash and mixed fertilizers at the rate of 120 kg N, 80 P and 40 kg/ha for the treatment plots and fertilizer treatment plot was given 240 kg N/ha in two split doses and the first dose of single super phosphate was applied just before sowing. Whenever necessary weeding was done by hand by using Khurpi and the use of insecticides and pesticides were avoided. 6 post sowing irrigations were given to plots. In order to ensure uniform population density per row and the plant to plant spacing within the row was maintained by transplanting extra seedlings whenever necessary followed by thinning in the dense population area.

Chemical and Statistical Analyses

The chemical analyses were done by adopting standard analytical methods. Nitrogen (N) content was determined by micro Kjeldahl method (Bailey, 1967). Calcium (Ca) content was determined as per AOAC (1995). The amount of phosphorus was estimated following Fiske and Subba Rau (1972) as described by Oser (1979). Water soluble Reducing sugars (WSRS) were determined with the help of Folin-Wu tubes (Oser, 1979). Potassium (K) content was determined using Flame Photometer following Jackson (1973). All the results were statistically analyzed using analysis of variance (ANOVA) test and treatments means were compared using the least significant difference (C.D. $p = 0.05$) which allowed determination of significance between different applications (Mungikar, 1997).

RESULTS AND DISCUSSION

Perusal of data presented in Table 1, shows that dry matter content (%) was highest in weed species *Tephrosia hamiltoni* (18.0 %) followed by *Crotolaria notonii*, (16.8 %), *Cassia* (16.0%) and *Achyranthes aspera* (14.8%). Similar trends were also noticed in case of nitrogen percentage and total nitrogen (kg/ha) and was highest in the weed green manure of *Tephrosia hamiltoni* because its dry matter was highest as compare to other treatments. Maximum crude protein kg/ha was in accordance to the nitrogen content. However trend was not alike in case of phosphorus and potassium content. Maximum (0.144%) phosphorus and (1.3%) potassium was recorded in case of weed species *Cassia tora* (Table 1).

Weed species were also analyzed to assess the ash, carbon, total nitrogen and CN ratio. Result summarized in table 2 revealed that significant highest ash content (13.0 %) for weed species *Crotolaria notonii* followed by *Cassia tora* and *Achyranthes aspera* (12.5%) and lowest (9.5%) in case of *Tephrosia hamiltoni. Achyranthes aspera produced* significant highest (7.25%) carbon. Similarly in case of total nitrogen, highest (3.16 %) was produced by *Tephrosia hamiltoni*, followed by *Crotolaria notonii* (2.99%). *Cassia tora* produced significantly lowest (2.08%) total nitrogen. Carbon nitrogen ratio was recorded significantly higher (3.11) in *Achyranthes aspera* followed by *Crotolaria notonii* (2.50) and significantly lowest (1.65) CN ratio was notice in case of *Cassia tora* .

Table 2: CN ratio of weeds used as green manure

Weed green manure	Ash %	Carbon %	Total N (%)	C/N ratio
Achyranthes aspera	12.5	7.25	2.33	3.11
Cassia tora	12.5	3.45	2.08	1.65
Crotolaria notonii	13.0	7.50	2.99	2.50
Tephrosia hamiltoni	09.5	5.50	3.16	1.74
CD (P=0.05)	1.63	1.92	0.39	0.83

Data presented in table 3 and table 4 are pertaining to maize crop performance in relation to imposed treatments. Observations were recorded on growth and development parameters especially with reference to total biomass per plant and there partitioning in to stem, root, leaves and plant height. Results summarized in table 3 revealed that at the growth stage of 94 days after sowing, height of the plant was significantly higher (246 cm) in the maize plot treated with *Crotolaria notonii* followed by (236 cm) in plots treated with urea, significantly shortest plant was recorded with 108 cm height in case of control plot. Biomass production per plant was also influenced by the different treatment and it was noticed that significant maximum fresh plant biomass (708 g) was

Table 1: Nutrient contents in the weeds used as green manure

Weed green manure	Fresh wt kg/ha	Dry matter		Nitrogen		Crude protein Kg/ha	Content (%)	
		%	Kg/ha	%	Kg/ha		Phosphorus	Potassium
Achyranthes aspera	13503	14.8	1998	2.33	47	290	0.114	1.1
Cassia tora	13503	16.0	2160	2.08	45	280	0.144	1.3
Crotolaria notonii	13503	16.8	2268	2.99	68	423	0.088	1.0
Tephrosia hamiltoni	13503	18.0	2430	3.16	77	479	0.136	1.0
CD (P=0.05)	NS	2.12	87.75	0.23	09.52	73.45	0.011	0.06

Table 3: Performance maize at 94 days after sowing

Weed green manure	Plant height (cm)	Plant fresh weight (g)				Circumference of Stem (cm)	4th upper leaf			Leaves (No.)	
		Total	Stem	Root	Leaves		Length (cm)	Width (cm)	Weight (g)	Fresh	Dry
Control	108	163	093	07	063	5.45	79.1	5.82	07.25	103	3.2
Urea	236	520	334	41	145	7.00	92.3	8.72	13.00	13.1	4.3
Achyranthes aspera	230	582	372	38	172	6.92	113.7	7.65	12.75	11.7	3.1
Crotolaria notonii	246	708	526	55	127	7.57	93.5	8.75	13.75	15.4	3.2
Cassia tora	215	607	392	39	176	7.42	78.3	7.82	13.20	12.8	4.2
Tephrosia hamiltoni	227	687	427	58	202	7.37	100.6	8.62	14.50	13.3	3.1
CD (P=0.05)	035	144	162	20	064	1.09	07.8	1.07	1.38	1.68	0.25

recorded in case of maize plant treated with *Crotolaria notonii,* followed by (687 cm) *Tephrosia hamiltoni (*607 cm) and *Cassia tora* (582 cm) *Achyranthes aspera* and lowest (108 cm) in control . Same sequence was followed by the stem weight. Urea increased plant height, but not increased its circumference and weight. Green manure of *Gliricidia sepum* improved the soil structure as well as productivity of the crop in rainfed agriculture (Rao *et al.,* 2011). More number of fresh leaves was found in the maize plots treated with *Crotolaria notonii* followed by *Tephrosia hamiltoni* and urea. It was noticed that less and faint yellow green leaves was found under control plot. Data were also recorded with reference to 4th upper leaf of maize, the *Achyranthes aspera* treated plot attains maximum (113.7 cm) leaf length however width of the leaf was significantly higher (8.75 cm) in the treatment of *Crotolaria notonii* followed by urea, *Tephrosia hamiltoni* and *Cassia tora*. Significantly lowest width (5.82 cm) was noticed in control plot.

Same set of observation were recorded after 104 days of sowing and data were represented in table 4. Significantly maximum (304 cm) plant height was observed in the plot treated with green manure of *Cassia tora,* followed by (297 cm) *Tephrosia hamiltoni* and (282 cm) *Achyranthes aspera notonii* . Urea treated plot attains 274 cm plant height. It is worth to mention that under control plot maize plant was weak and dwarf (185 cm). Plant weight was related with plant height and circumference (girth) of the plant. Significantly higher weight and circumference were recorded in the treatment of *Crotolaria notonii* 840 g and 8.10 cm respectively. Weight of the leaves and its number is more in the treatment of *Tephrosia hamiltoni* followed by *Crotolaria notonii, Achyranthes aspera,* urea, *Cassia tora* and control. Data were also recorded with reference to 4th upper leaf of maize, the *Achyranthes aspera* treated plot attains maximum (141.6cm) leaf length, however width of the leaf was significantly higher (9.87cm) in the treatment of urea followed by *Tephrosia hamiltoni* (8.70) and *Achyranthes aspera* (8.07). Significantly lowest width (6.22cm) was noticed in control plot.

Data presented in table 5 reveals about the maize performance at the age of 94 days. Growth parameters like fresh and dry weight, total plant nitrogen crude protein and total plant reducing sugar were depicted. It was noticed that significant maximum (692 g) fresh yield was recorded in Cassia *tora* followed (685 g) by *Tephrosia hamiltoni* corresponding value for urea was 505 g. Significantly lowest (162 g) fresh weight per plant was recorded in control. The sequence of dry matter and fresh weight is not the same. Lowest dry matter content was found in the treatment of urea therefore

Table 4: Performance of maize at 104 days after sowing

Weed green manure	Plant height (cm)	Plant fresh Weight in (g)				Circumference of Stem (cm)	4th upper leaf			No. of leaves	
		Total	Stem	Root	Leaves		Length (cm)	Width (cm)	Weight (g)	Fresh	Dry
Control	185	212	148	14	050	5.65	85.1	6.22	08.4	11.7	3.3
Urea	274	762	513	47	202	7.50	89.2	9.87	20.1	13.5	3.4
Achyranthes aspera	282	690	427	40	222	7.35	141.6	8.07	19.4	12.4	4.5
Crotolaria notonii	297	840	540	77	222	8.10	92.7	8.32	18.2	16.2	4.1
Cassia tora	304	807	575	41	191	7.77	84.3	8.22	20.2	13.6	4.5
Tephrosia hamiltoni	299	840	519	74	246	8.12	1105	8.70	20.1	17.2	5.2
CD (P=0.05)	051	214	120	16	079	1.13	07.8	1.11	1.29	1.71	0.26

Table 5: Effect of weed green manure on performance maize plant at 94 days after sowing

Treatments	Fresh Wt. Per plant (g)	Total plant Dry matter		Total plant Nitrogen		Total plant Crude protein (g)	Total plant Reducing sugar	
		%	Yield (g)	%	Yield (g)		%	Yield (g)
Control	162	15.75	25.5	0.686	0.175	1.093	1.673	0.428
Urea	505	15.50	78.3	0.957	0.749	4.681	3.285	2.571
Achyranthes aspera	580	18.25	105.8	1.272	1.34	8.375	4.468	4.729
Crotolaria notonii	600	17.25	103.5	0.978	1.012	6.325	3.223	3.335
Cassia tora	692	17.00	117.7	1.186	1.396	8.725	3.795	4.467
Tephrosia hamiltoni	685	17.25	118.2	1.478	1.746	10.915	3.958	4.676
CD (P=0.05)	143	0.18	36.81	0.871	0.530	0.628	0.481	1.281

Table 6: Effect of weed green manure on root of maize at stage of 94 days after sowing

Treatments	Fresh Root Wt. Per plant (g)	Total plant Dry matter		Total plant Nitrogen		Total plant crude protein (g)	Total plant Reducing sugar	
		%	Yield (g)	%	Yield g)		%	Yield (g)
Control	7.25	38.04	2.67	0.291	0.007	0.048	0.877	0.023
Urea	41.25	38.38	15.75	0.374	0.058	0.368	1.269	0.199
Achyranthes aspera	38.00	39.75	15.00	0.666	0.099	0.624	1.634	0.245
Crotolaria notonii	38.75	39.52	15.25	0.395	0.060	0.376	1.472	0.224
Cassia tora	55.00	39.36	21.97	0.499	0.109	0.685	1.391	0.305
Tephrosia hamiltoni	57.75	44.82	26.25	0.603	0.158	0.989	1.472	0.386
CD (P=0.05)	19.76	1.73	10.37	0.09	0.08	0.528	0.17	0.345

the plants are succulent, fleshy, dark green but brittle and unable to bear environmental changes as heavy wind or rain and susceptible for lodging. The highest dry matter yield (118.2 g) was found in the treatment of *Tephrosia hamiltoni* followed by (117.7 g) *Cassia tora* and lowest (25.51 g) in control followed by urea (78.27 g). Total reducing sugar content per plant was significantly affected by treatments. The highest sugar content (4.729 g) was noticed in the treatment of *Achyranthe aspera* followed by *Tephrosia hamiltoni* (3.958 g) and lowest in control (0.428 g) followed by urea (2.571 g). Similar results were recorded by Shivarudrappa *et al.* (2013). There was an increased dry weight of ground nut by 73% (467 kg/ha) and dry wt. of fodder by 12 % (166 kg/ha) over to control respectively.

Data presented in table 6, reveals about the root performance maize at the age of 94 days. Dry matter yield was highest (26.25g) in the plot treated with of *Tephrosia hamiltoni* as compared to other treatments and lowest in control. Nitrogen and crude protein followed the same sequence *i.e.* the highest nitrogen content was in the treatment of *Tephrosia hamiltoni* (0.158g) followed by *Crotolaria notonii* (0.109g) and lowest in control (0.007g). As compare to stem and leaves total reducing sugar yield and percentage in root was very low. Highest percentage was in the treatment of *Tephrosia hamiltoni* followed by *Crotolaria notonii*, *Achyranthes aspera* and *Cassia tora* and lowest in control followed by urea.

Although the organic manures contain plant nutrients in small quantities as compared to the fertilizers, the presence of growth promoting principles like enzymes and hormones, besides plant nutrients make them essential for improvement of soil fertility and productivity (Bhuma, 2001). These results are with the findings of Whitbread *et al.* (1999) who showed increase in rice grain yield (23-48%) than control. The leaf green manure improved the yield and the nutrient uptake of spinach (Chamle, 2007). Based on the results it reveals that the growth and yield of maize increased significantly due to application of green manure as a result of better uptake of nutrients from the soil. These results are in agreement with Minhas and Sood (1994) who proved that sustainable availability of the nutrients can occur in various crops due toapplication of organic manure. Plants inoculated with organic manure recorded increase in root, stem, leaf weight (Muthaura *et al*., 2010, Naikwade *et al*., 2011b). Same results were obtained in rice by Nandi and Mandal (1977).

CONCLUSION

Present study revealed that if weed green manure are used as source of mineral nutrition, this will not only supply nutrient but also increases sugar contents. Weed green manure can be prove to be excellent nutrient for improving production especially sugar cane, sugar beet, grapes, sweet sorghum and other horticultural sweet fruit yielding trees as mango, lemon, orange, papaya, water melon etc. As compared to the other manuring methods, weed green manuring is the best working; active and cheapest source of plant nutrients working with high efficiency and it is less wasteful and time consuming.

REFERENCES

AOAC. 1995. *Official Methods of Analytical Chemistry*. 16th Ed., Association of Official Analytical Chemists, Washington, DC.

Bailey RL. 1967. *Techniques in Protein Chemistry.* II Ed., Elsevier Publishing Co., Amsterdam.

Bhuma M. 2001. Studies on the impact of humic acid on sustenance of soil fertility and productivity of greengram. M.Sc.(Ag) Thesis, TNAU, Coimbatore.

Bittenbender HC, Hue NV, Fleming K and Brown H. 1998. Sustainability of organic fertilization of macadamia with macadamia husk-manure compost. *Communications in Soil Science and Plant Analysis* **29**: 409-419.

Chamle DR. 2007. Evaluation of leaf litter compost on yield and nutrient uptake of spinach. *J. Phytol. Res.* **20**: 219-223.

Delas J. 1989. Utilization of city refuse compost in viticulture, p. 282–293. In: Istituto Agrario di San Michele all'Adige (IASMA). *Proceedings of the International Symposium on Compost Production and Use*, S. Michele all'Adige, Trento, Italy, 20-23 Jun. 1989. IASMA Publication.

Dick RP. 1992. A review: long-term effects of agricultural systems on soil biochemical and microbial parameters, p. 25-36. In: M.G. Paoletti and D. Pimentel (eds.). *Biotic Diversity in Agroecosystems*. Symposium on Agroecology and Conservation Issues in Tropical and Temperate Regions, Padova, Italy 26–29 Sept. 1990. Elsevier, Amsterdam.

Ferreira ME and Cruz MCP. 1992. Estudo do efeito de vermicomposto sobre absorção de nutrientes e produção de metéria seca pelo milho e propriedades do solo. *Científica São Paulo* **20**: 217-227.

Fiske CH and Subba Rau Y. 1972. The calorimetric method for the estimation of phosphorus. *J. Biol. Chem*. **66**: 375-377.

Ghadge SA, Naikwade PV, and Jadhav BB. 2013. Utilization of problematic weed for improved yield of fenugreek. *Indian Stream research Journal* **3** (4): 1-8.

Jackson ML. 1973. *Soil Chemical Analysis.* Prentice Hall of India Pvt. Ltd., New Delhi.

Kipps MS. 1970. Production of field crops. A text book of Agronomy, *Tata Mc Graw Hill, Publishing company Ltd. Bombay.*

Minhas RS and Sood A. 1994. Effect of Inorganics and Organics on the Yield and Nutrient Uptake by Three Crop Rotations on an Acid Alfisol. *Journal of Indian Society of Soil Science* **42**: 257-260.

Mungikar AM. 1997. *An Introduction to Biometry*. Sarawati Printing Press, Aurangabad.

Muthaura C, Musyimi DM, Ogur JA and Okello SV. 2010. Effective microorganisms and their influence on growth and yield of pigweed (*Amaranthus dubians*) *ARPN Journal of Agricultural and Biological Science* **5**: 17-22.

Naikwade PV, Mogle UP and Jadhav BB. 2011a. Improving Total chlorophyll, ascorbic acid and β -carotene in spinach by applying weed manures, *Bioscience discovery* **2**(2):251-255.

Naikwade PV, Mogle UP and Jadhav BB. 2011b. Effect of *Ipomoea* weed manures on quality of fodder crop maize. *Research Journal of Agricultural Science* **2**(4): 927-930.

Nandi S and Mandal LN. 1977. Influence of Organic Matter and Chemical Changes in Soil on Growth and Nutrition of Rice Under Different Moisture Regimes. *Journal of Indian Society of Soil Science* **47**: 411-414.

Obeng LA and Wright FW. 1987. *The Cocomposting of Domestic Solid and Human Wastes*.World Bank Technical Report No. 57, The World Bank, Washington, D.C.

Oser BL. 1979. *Hawk's Physiological Chemistry.* XIV Ed., Tata McGraw Hill Publishing Co. Ltd., New Delhi.

Sequi P. 1996. The role of composting in sustainable agriculture. *The Science of Composting*, Part I, p. 23 (eds. de Bertoldi, M., Sequi, P., Lemmes, B., and Papi, T.), Blackie Academic and Professional, Glasgow, UK.

Sharma RP and Verma TS. 2001. Dynamics of nitrogen fractions with long term addition of *Lantana camara* in rice- wheat cropping system. *J. Indian Soc. Soil Sci.* **49:** 407-412.

Shivarudrappa B, Jyoti Sahare, Giridhar P, Nimbalkar S. 2013. The effect of green manure (Sesbania aculeata & Vigna sinensis) on groundnut yield & biomass under dry land condition of Pampanur Thanda of Ananthapur District, AP, India. *Key Research Journal of Agriculture* **1**(1):11- 13.

Sikora JL. 1996. Effect of compost-fertilizer blends on crop growth, p. 423–430. In: M. De Bertoldi, P. Sequi, B. Lemmes, and T. Papi (eds.). *The Science of Composting*. Proceedings of the International Symposium on The Science of Composting, Bologna, Italy 30 May–2 June 1995. Blackie Academic and Professional, London.

Singh AK and Kumar P.2009. Nutrient management in rainfed dryland agro ecosystem in the impending climate change scenario. *Agril. Situ. India.* **66** (5): 265-270.

Singh AK, Sangle UR, Bhatt BP 2012. Mitigation of imminent climate change and enhancement of agricultural system productivity through efficient carbon sequestration and improved production technologies. *Indian Farming* **61** (10): 5-9.

Singh SS, Singh AK and Sundaram PK. 2014. Agrotechnological options for upscaling agricultural productivity in eastern indo gangetic plains under impending climate change situations: A review. *Journal of Agrisearch* **1** (2): 55-65.

Rao S, Venkateswarlu B, Babu MD, Wani SP, Dixit S, Sahrawat KL and Kundu S. 2011. Soil Health Improvement with Gliricidia Green Leaf Manuring in Rainfed Agriculture on Farm Experiences. *Technical Bulletin* **2**:01-16Swift MJ, Heal OW and Anderson JM. 1979. *Decomposition in Terrestrial Ecosystem.* Blackwell Sci. Publ., London.

Whitbread A, Blair G, Naklang K, Lefroy R, Wonprasaid S, Konboon Y and Suriya-arunroj D. 1999. *Plant Soil.* **209** 29–36.

Yewalkar KS, Agrawal JP and Bokade S. 1977. Manures and Fertilizers. *Agri-Horticultural Publishing House, Nagpur, India.*

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