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Impact of integrated nutrient management on growth, yield attributes and yield of sweet corn in lateritic soil

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Abstract
An experiment was conducted to study the "Impact of integrated nutrient management on the performance of sweet corn" at Agronomy Experimental Research Farm, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli (MS). The results of the present investigation indicated that the growth and yields attributes of the plant *viz*. height, number of leaves dry matter accumulation per plant and cob length, cob girth, number of grain rows, number of grains per cob, weight of grains per cob, weight of cob and cob yield (q ha^{-1}) total biological yield (qha^{-1}) and green fodder yield (q ha^{-1}) were found to be significantly higher under 75% RDN + 25% N through PM at all the crop growth stages, during both the years of experimentation as well as in the mean of two years over rest of the nutrient management practices except dry matter accumulation at 30 DAS 100% N as PM nutrient source was at par with 100% N through PM. Number of cobs ha^{-1} was at par with 50% RDN + 50% N as PM level of nutrient source during all the three observations.

Keywords: INM, growth attribute, yield attribute, yield, PM, RDN

Introduction
Sweet corn (*Zea mays* saccharata) also known as sugar corn is hybridized variety of maize (*Zea mays*), specifically breed to increase the sugar content. Sweet corn is commonly known as "simply corn" in United States Canada, Australia and New Zealand. In Brazil it is known as "Milho Verde" (Green corn). It was introduced in India from USA. Today, for the country of India's dimension, with no scope for horizontal expansion and complexity of problems and challenges, there is no alternative but continue to improve productivity without further degrading its natural resources that too in a sustainable manner. In this context it is need to adopt a rationalist organic farming approach to have an 'Evergreen Revolution'. This has led to the concept of Integrated Nutrient Management (INM) gain momentum in recent years to improve and maintain the soil health. Besides this, with escalating cost of energy based fertilizer material, limited fossil fuels, INM approach combines the use of organic sources along with fertilizers, which would be remunerative for getting higher yields with considerable fertilizer economy (Subbian and Palaniappan, 1992) [9]. In Konkan region well irrigation is available up to March. Hence sweet corn grown for cob purpose can be very well taken under such conditions. However, information on efficient and economic use of nitrogen fertilizer and poultry manure for sweet corn particularly under lateritic soil is meager. Keeping these in mind, an experiment was conducted with an object to study the effect of organic and inorganic sources of nutrients on the performance of sweet corn.

Material and Methods
A field experiment was conducted to study the **"**Impact of integrated nutrient management on the performance of sweet corn" at Agronomy Experimental Research Farm, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli (MS). The soil of experimental plot was classified as lateritic, sandy clay loam in texture, slightly acidic in reaction and medium in organic carbon content. The soil was low in available nitrogen content, medium in available P_2O_5 and low in available K_2O content, during both the years. The experiment was laid out in split-split plot design. The main plot treatments comprised of four nutrient sources (T_1-100% RDN, T_2-75% RDN + 25% N as PM, T_3-50% RDN + 50% N as PM and T_4-100% N as PM), while the sub-plot treatments comprised of two levels of mulches (control and transparent polythene

mulch) and sub-sub plot treatments comprised of two levels of growth stimulants (3% panchagavya spray and amrutpani through irrigation and control). Thus, there were 16 treatment combinations replicated in thrice. The Poultry manure and NPK fertilizes to the sweet corn crop were applied as per the main plot treatment taking in to account the following recommended dose 225:60:60 kg NPK ha^{-1}. The poultry manure, single super phosphate and muirate of potash were applied at the time of sowing, single super phosphate and muirate of potash were applied commonly to all the treatments as per the recommended dose of fertilizer. While, nitrogen was applied in three split doses, 1st at the time of sowing(40%), 2nd one month after sowing (30%) and remaining (30%) at pre-tasseling stage through urea. The experimental data was subjected to analysis of variances (ANOVA) and treatment means were compared, significant differences were tested at p=0.05 using split-split plot design as given by Panse and Sukhatme (1985) [5].

Results and Discussion

Effect of nutrient sources on growth attributes: It was observed that the nutrient sources influenced the plant height (Table 1) significantly at all the stages during both the years and in the mean of two years. Application of 75% RDN + 25% N as PM (F_2) produced significantly taller plants compared to 100% RDN (F_1), 50% RDN + 50% N as PM (F_3) and 100% N as PM (F_4) during consecutive two years and in the mean of two years. While the difference between 50% RDN + 50% N as PM (F_3) and 100% N as PM (F_4) was not up to the mark during first year compared to second year whereas 100% N as PM (F_4) was significantly superior over 50% RDN + 50% N as PM (F_3) during second year and in the mean of two years. This may be due to 100% application of nitrogen through poultry manure at the time of sowing along with the P and K content in the poultry manure. Maximum number of functional leaves (Table 2) per plant at 30, 60 DAS was recorded with 75% RDN + 25% N as PM (F_2), which was significantly superior over 100% RDN (F_1), 50% RDN + 50% N as PM (F_3) and 100% N as PM (F_4) during both the years and in the mean of two years. At 90 DAS significantly maximum number of functional leaves were observed with 75% RDN + 25% N as PM (F_2) over 50% RDN + 50% N as PM (F_3) and 100% N as PM (F_4) but behave similarly with 100% RDN (F_1) during 1st year and mean of two years while during second (F_2) 75% RDN + 25% N as PM was significantly superior over rest of the treatments. At harvest significantly maximum number of functional leaves were recorded under treatment 100% RDN (F_1) than 50% RDN + 50% N as PM (F_3) and 100% N as PM (F_4) but was at par with 75% RDN + 25% N as PM (F_2). The higher number of functional leaves under F_2 (75% RDN + 25% N as PM) were responsible for synthesizing more photosynthates under F_2 (75% RDN + 25% N as PM) as it was possible for the crop to intercept and harvest more solar radiation per unit area under F_2 (75% RDN + 25% N as PM) than the remaining treatments. At harvest, dry matter accumulation (Table 3 & 4) in the leaves, stem, grain, cob sheath, cob axis and total dry matter accumulation was significantly higher with F_2 (i.e. 75% RDN + 25% N as PM) compared to F_1 (100% RDN), F_3 (50% RDN + 50% N as PM) and F_4 (100% N as PM) during both the years of experimentation and in the mean of two years also. This was manly due to the fact that only 25 per cent of the recommended dose of nitrogen was applied through poultry manure under F_2 (75% RDN + 25% N as PM) along with 75 per cent of recommended nitrogen through chemical fertilizer. Therefore, there was enough available nitrogen in the soil for satisfying the nitrogen requirement of the crop as well as the micro-organisms responsible for decomposition of organic material in the soil. Hence, the rate of mineralization of the major nutrients was faster under F_2 (75% RDN + 25% N as PM) than F_3 (50% RDN + 50% N as PM) and F_4 (100% N as PM). The rate of mineralization of the nutrients under F_2 (75% RDN + 25% N as PM) was as per the requirement of the crop throughout its life span. Therefore, the crop under F_2 (75% RDN + 25% N as PM) was physiologically more active than the remaining treatments of the nutrient sources. Better performance with balance integrated nutrient management might be due to its higher nutrient contents and their faster release (Gosavi *et al*. 2006; Patra and Biswas, 2009; Samsul *et al*. 2012 and Rasool *et al*. 2016) [1, 6, 8, 7].

Effect of nutrient sources on yield attributes: The cob length, cob girth, number of grain rows and grains cob^{-1} (Table 5, 6) were influenced significantly due different nutrient sources during both years as well as in the mean of two years. All the above referred yield attributes were significantly higher under F_2 (i.e. 75% RDN + 25% N as PM) compared to F_1 (100% RDN), F_3 (50% RDN + 50% N as PM) and F_4 (100% N as PM) during both the years of experimentation and in the mean of two years except number of grains cob^{-1}, where F_2 (i.e. 75% RDN + 25% N as PM) was at par with F_3 (50% RDN + 50% N as PM) during 2005-06. Further F_1 (100% RDN) and F_2 (i.e. 75% RDN + 25% N as PM) nutrient sources were at par with each other and significantly superior over F_4 (100% N as PM) in respect of all the above referred yield attributes during all the three observations. Availability of the source under F_2 (75% RDN + 25% N as PM) was considerably higher than the remaining treatments. Generally there is positive co-relation between the source and the sink and hence, better availability of the source under F_2 (75% RDN + 25% N as PM) resulted in creation of higher amount of sink under F_2 (75% RDN + 25% N as PM) than the remaining treatments. Hence, the cob length, cob girth, number of grain rows per cob and number of grains per cob were significantly higher under F_2 (75% RDN + 25% N as PM) than the remaining treatments. Similarly, Khadtare *et al.* (2006) [3] concluded that the balance integration of RDN and manuring were significantly increases the yield attributes than control.

Effect of Nutrient sources on yield: During both the years and in the mean of two years, the number of cobs per hectare (Table 7) was significantly higher with F_2 (i.e. 75% RDN + 25% N as PM) which was at par with F_3 (i.e. 50% RDN + 50% N as PM) and both these treatments were significantly superior over F_1 and F_4 treatments. Whereas, F_1 recorded significantly higher number of cobs ha^{-1} over F_4 during both the years and in the mean of two years. Further, in respect of cob yield and total biological yield during all the three observations and green fodder yield during 2nd year and in the mean of two years F_2 (75% RDN + 25% N as PM) level of nutrient source was significantly superior over the remaining levels. It was followed by F_1 (100% RDN) and F_3 (50% RDN + 50% N as PM) levels which were at par and significantly superior over F_4 (100% N as PM) in respect of the above referred characters. However, in case of green fodder yield during 1st year F_2 (75% RDN + 25% N as PM) and F_1 (100% RDN) levels were at par and were significantly superior over F_3 (50% RDN + 50% N as PM) and F_4 (100% N as PM)

levels. Similar findings were corroborated with Khadtare *et al.* (2006) [3], Rasool *et al.* (2016) [7] and Zelalem (2014) [10] reported that the balance integration of RDN and manuring were significantly increases the productivity of sweet corn than control due to balanced nutrition sustain optimum productivity of crop.

Table 1: Effect of nutrient sources, polythene mulch and growth stimulants on the plant height of the sweet corn at 30, 60, 90 DAS and at harvest

Treatments	30 DAS			60 DAS			90 DAS			At harvest		
	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean
Nutrient sources												
F_1-100% RDN	23.85	31.42	27.63	115.18	166.58	140.88	171.17	194.45	182.81	174.17	193.75	183.96
F_2-75% RDN + 25% N as PM	33.42	35.00	34.21	129.32	177.97	153.64	188.40	203.15	195.78	191.40	206.92	199.16
F_3-50% RDN + 50% N as PM	26.60	32.90	29.75	112.32	169.12	140.72	174.35	196.87	185.61	177.35	195.13	186.24
F_4-100% N as PM	27.07	34.35	30.71	100.02	161.47	130.74	161.85	187.15	174.50	164.85	186.17	175.51
SE (m) ±	0.43	0.18	0.25	1.48	0.86	0.76	1.42	0.77	0.89	1.42	0.47	0.71
CD (5%)	1.50	0.63	0.88	5.11	2.97	2.64	4.90	2.66	3.08	4.90	1.63	2.45
Polythene mulch												
M_0-Control	22.63	29.49	26.06	94.87	153.97	124.42	168.44	189.52	178.98	171.44	190.19	180.82
M_1- Mulch	32.84	37.34	35.09	133.55	183.60	158.58	179.44	201.29	190.37	182.44	200.79	191.62
SE (m) ±	0.24	0.09	0.13	0.26	0.46	0.28	0.41	0.28	0.22	0.41	0.25	0.16
CD (5%)	0.77	0.30	0.41	0.85	1.51	0.92	1.34	0.90	0.72	1.34	0.80	0.52
Growth stimulants												
P_0-Control	27.51	33.50	30.50	110.98	166.52	138.75	170.64	192.27	181.45	173.64	193.59	183.62
P_1-Panchagavya + Amrutpani	27.96	33.33	30.65	117.44	171.05	144.25	177.24	198.54	187.89	180.24	197.39	188.82
SE (m) ±	0.08	0.06	0.05	0.18	0.27	0.21	0.15	0.16	0.11	0.15	0.20	0.14
CD (5%)	NS	NS	NS	0.55	0.82	0.62	0.45	0.48	0.33	0.45	0.61	0.41
Interactions												
F X M	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GM	27.73	33.42	30.58	114.21	168.78	141.50	173.94	195.06	184.67	176.94	195.49	186.22

Table 2: Effect of nutrient sources, polythene mulch and growth stimulants on the number of leaves of the sweet corn at 30, 60, 90 DAS and at harvest

.	30 DAS			60 DAS			90 DAS			At harvest		
	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean
Nutrient sources												
F_1-100% RDN	7.07	7.07	7.07	10.72	12.48	11.60	11.52	12.43	11.98	10.90	11.63	11.27
F_2-75% RDN + 25% N as PM	7.88	7.85	7.87	11.20	12.88	12.04	11.60	12.68	12.14	10.87	11.13	11.00
F_3-50% RDN + 50% N as PM	7.22	7.20	7.21	10.43	12.57	11.50	10.83	12.17	11.50	10.20	10.40	10.30
F_4-100% N as PM	7.33	7.43	7.38	9.58	10.15	9.87	8.50	8.02	8.26	7.98	7.02	7.50
SE (m) ±	0.04	0.04	0.02	0.09	0.07	0.08	0.11	0.07	0.07	0.10	0.08	0.07
CD (5%)	0.14	0.16	0.08	0.31	0.25	0.27	0.40	0.24	0.25	0.36	0.28	0.24
Polythene mulch												
M_0-Control	6.78	6.91	6.84	9.80	11.47	10.64	10.43	11.16	10.80	10.31	10.70	10.50
M_1- Mulch	7.98	7.87	7.92	11.16	12.58	11.87	10.79	11.49	11.14	9.67	9.39	9.53
SE (m) ±	0.02	0.02	0.02	0.033	0.04	0.02	0.03	0.03	0.03	0.02	0.04	0.03
CD (5%)	0.06	0.06	0.06	0.108	0.14	0.08	NS	NS	NS	0.05	0.14	0.08
Growth stimulants												
P_0-Control	7.43	7.48	7.46	10.11	11.63	10.87	10.33	10.81	10.57	9.70	9.77	9.73
P_1-Panchagavya + Amrutpani	7.32	7.29	7.30	10.86	12.41	11.63	10.89	11.84	11.37	10.28	10.33	10.30
SE (m) ±	0.01	0.02	0.01	0.013	0.02	0.01	0.02	0.03	0.02	0.01	0.03	0.02
CD (5%)	NS	NS	NS	0.040	0.05	0.03	0.06	0.08	0.05	0.04	0.10	0.06
Interactions												
F X M	NS	NS	NS	NS	NS	NS	SIG	NS	NS	NS	NS	NS
F X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GM	7.38	7.39	7.38	10.48	12.02	11.25	10.61	11.33	10.97	9.99	10.05	10.02

Table 3: Effect of nutrient sources, polythene mulch and growth stimulants on dry matter accumulation (g) of the sweet corn at harvest.

Treatments	At harvest								
	Leaves			Stem			Grain		
	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean
Nutrient sources									
F_1-100% RDN	63.13	71.46	67.30	61.76	78.54	70.15	77.89	74.64	76.27
F_2-75% RDN + 25% N as PM	71.10	81.54	76.32	77.12	100.73	88.93	87.01	92.70	89.85

F_3-50% RDN + 50% N as PM	62.02	72.70	67.36	65.74	81.85	73.80	78.43	70.29	74.36
F_4-100% N as PM	51.14	58.74	54.94	50.76	67.53	59.14	70.93	56.16	63.55
SE (m) ±	0.93	0.66	0.78	1.36	1.37	1.02	0.47	0.74	0.28
CD (5%)	3.20	2.30	2.69	4.70	4.75	3.52	1.61	2.55	0.95
Polythene mulch									
M_0-Control	52.61	63.91	58.26	50.85	69.31	60.08	70.60	67.07	68.84
M_1- Mulch	71.08	78.31	74.70	76.84	95.02	85.93	86.53	79.83	83.18
SE (m) ±	0.38	0.37	0.24	0.51	0.69	0.41	0.54	0.24	0.36
CD (5%)	1.24	1.21	0.78	1.67	2.24	1.34	1.78	0.78	1.19
Growth stimulants									
P_0-Control	57.95	68.52	63.24	55.31	76.82	66.06	74.60	69.40	72.00
P_1-Panchagavya + Amrutpani	65.75	73.70	69.72	72.38	87.50	79.94	82.53	77.50	80.01
SE (m) ±	0.36	0.34	0.26	0.49	0.60	0.28	0.44	0.38	0.26
CD (5%)	1.09	1.01	0.78	1.47	1.81	0.85	1.33	1.15	0.77
Interactions									
F X M	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
GM	61.85	71.11	66.48	63.84	82.16	73.00	78.57	73.45	76.00

Table 4: Effect of nutrient sources, polythene mulch and growth stimulants on dry matter accumulation (g) of the sweet corn at harvest

Treatments	At harvest								
	Cob sheath			Cob axis			Total		
	1st year	2nd year	Mean of 2 years	1st year	2nd year	Mean of 2 years	1st year	2nd year	Mean of 2 years
Nutrient sources									
F_1-100% RDN	26.56	30.03	28.30	30.19	24.28	27.23	259.53	278.95	269.24
F_2-75% RDN + 25% N as PM	32.78	37.58	35.18	37.07	29.70	33.38	305.08	342.26	323.67
F_3-50% RDN + 50% N as PM	26.88	31.28	29.08	33.35	25.87	29.61	266.42	281.98	274.20
F_4-100% N as PM	16.03	14.64	15.34	25.43	15.93	20.68	214.27	212.99	213.65
SE (m) ±	0.29	0.43	0.31	0.50	0.40	0.36	3.27	2.69	2.24
CD (5%)	1.01	1.49	1.06	1.74	1.38	1.26	11.32	9.29	7.74
Polythene mulch									
M_0-Control	17.90	23.19	20.54	29.68	21.65	25.66	221.63	245.13	233.38
M_1- Mulch	33.23	33.58	33.40	33.34	26.24	29.79	301.01	312.97	307.00
SE (m) ±	0.21	0.14	0.11	0.19	0.12	0.12	1.12	0.89	0.62
CD (5%)	0.70	0.45	0.35	0.63	0.38	0.39	3.67	2.90	2.03
Growth stimulants									
P_0-Control	22.93	25.94	24.44	30.10	22.42	26.26	240.88	263.10	252.00
P_1-Panchagavya + Amrutpani	28.20	30.83	29.51	32.92	25.47	29.19	281.77	295.00	288.38
SE (m) ±	0.12	0.21	0.12	0.17	0.17	0.09	0.96	0.85	0.49
CD (5%)	0.36	0.63	0.36	0.50	0.51	0.26	2.87	2.54	1.48
Interactions									
F X M	NS	NS	SIG	NS	NS	NS	NS	NS	NS
F X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
M X P	NS	NS	NS	NS	NS	NS	NS	NS	SIG
F X M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
GM	25.56	28.38	26.97	31.51	23.94	27.73	261.32	279.05	270.19

Table 5: Effect of nutrient sources, polythene mulch and growth stimulants on the yield attributing characters of the sweet corn

Treatments	Cob length			Cob girth			Number of grain rows			Number of Grains per cob		
	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean
Nutrient sources												
F_1-100% RDN	20.19	19.13	19.66	17.12	17.73	17.43	14.71	14.71	14.71	603.27	595.69	599.48
F_2-75% RDN + 25% N through PM	21.10	20.39	20.75	18.01	18.39	18.20	15.92	15.92	15.92	632.83	696.00	664.42
F_3-50% RDN + 50% N through PM	20.14	19.39	19.76	17.32	17.87	17.60	14.96	14.83	14.90	624.15	603.48	613.81
F_4-100% N through PM	16.78	16.77	16.78	15.93	16.15	16.04	14.25	14.58	14.42	453.65	498.90	476.27
SE (m) ±	0.13	0.16	0.12	0.10	0.05	0.06	0.08	0.08	0.06	7.49	8.34	6.07
CD (5%)	0.43	0.57	0.40	0.34	0.16	0.22	0.29	0.28	0.21	25.91	28.86	21.01
Polythene mulch												
M_0-Control	19.03	17.96	18.50	16.43	17.08	16.75	14.42	14.52	14.47	549.01	552.67	550.84
M_1- Mulch	20.07	19.87	19.97	17.76	17.99	17.88	15.50	15.50	15.50	607.94	644.36	626.15
SE (m) ±	0.03	0.04	0.03	0.03	0.01	0.02	0.02	0.03	0.02	1.73	1.09	0.80
CD (5%)	0.10	0.12	0.10	0.11	0.03	0.07	0.08	0.10	0.07	5.63	3.54	2.61
Growth stimulants												
P_0-Control	19.18	18.32	18.75	16.67	17.36	17.02	14.58	14.77	14.68	552.39	577.69	565.04
P_1-Panchagavya + Amrutpani	19.92	19.51	19.72	17.52	17.71	17.61	15.33	15.25	15.29	604.56	619.34	611.95

SE (m) ±	0.05	0.06	0.04	0.02	0.02	0.02	0.02	0.02	0.02	2.68	2.30	2.02
CD (5%)	0.15	0.18	0.13	0.07	0.05	0.05	0.07	0.07	0.06	8.03	6.89	6.05
Interactions												
F X M	SIG	NS	SIG	SIG	SIG	SIG	NS	NS	NS	SIG	NS	SIG
F X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GM	19.55	18.92	19.23	17.09	17.53	17.31	14.96	15.01	14.98	578.47	598.52	588.49

Table 6: Effect of integrated nutrient management, polythene mulch and growth stimulants on the yield attributing characters of the sweet corn

Treatments	Weight of grains per cob			Number of cobs per plant			Weight per cob		
	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean
Nutrient sources									
F_1-100% RDN	220.35	247.67	234.01	1.30	1.68	1.49	430.42	461.67	446.04
F_2-75% RDN + 25% N through PM	254.52	276.04	265.28	1.17	1.92	1.54	478.96	477.08	478.02
F_3-50% RDN + 50% N through PM	235.37	268.33	251.85	1.08	1.68	1.38	457.22	475.71	466.47
F_4-100% N through PM	143.47	164.13	153.80	1.07	1.18	1.13	295.97	295.42	295.69
SE (m) ±	2.87	4.13	3.04	0.02	0.03	0.01	6.87	5.17	5.19
CD (5%)	9.94	14.30	10.53	NS	0.10	0.05	23.77	17.89	17.96
Polythene mulch									
M_0-Control	186.92	222.60	204.76	1.09	1.47	1.28	393.40	393.21	393.31
M_1- Mulch	239.92	255.48	247.70	1.22	1.77	1.49	437.88	461.73	449.81
SE (m) ±	2.07	1.16	0.82	0.01	0.01	0.01	2.25	1.93	0.91
CD (5%)	6.76	3.79	2.68	NS	0.03	0.03	7.32	6.28	2.98
Growth stimulants									
P_0-Control	187.98	229.79	208.88	1.20	1.63	1.41	382.95	412.71	397.83
P_1-Panchagavya + Amrutpani	238.87	248.29	243.58	1.11	1.61	1.36	448.33	442.23	445.28
SE (m) ±	2.12	0.99	1.26	0.01	0.01	0.01	3.42	1.63	2.07
CD (5%)	6.37	2.98	3.77	NS	NS	NS	10.26	4.90	6.22
Interactions									
F X M	NS	NS	SIG	NS	NS	NS	SIG	NS	SIG
F X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS
GM	213.42	239.04	226.23	1.15	1.62	1.39	415.64	427.47	421.56

Table 7: Effect of nutrient sources, polythene mulch and growth stimulants on number of cobs, green fodder and total biological yield of the sweet corn

Treatments	Number of cobs per ha.			Cob yield (q/ha)			Green fodder yield (q/ha)			Biological yield (q/ha)		
	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean	1st year	2nd year	Mean
Nutrient sources												
F_1-100% RDN	48544.97	58531.75	53538.36	199.34	217.26	208.30	226.36	243.06	234.71	425.69	460.32	443.01
F_2-75% RDN + 25% N as PM	52447.09	62962.96	57705.03	214.62	230.82	222.72	238.10	256.61	247.35	452.71	487.43	470.07
F_3-50% RDN + 50% N as PM	51521.16	61044.97	56283.07	197.69	216.27	206.98	210.02	240.08	225.05	407.71	456.35	432.03
F_4-100% N as PM	41071.43	43716.93	42394.18	104.63	96.23	100.43	144.35	161.71	153.03	248.97	257.94	253.46
SE (m) ±	420.86	662.5917	418.98	2.75	2.29	2.32	4.22	2.11	3.10	6.62	4.22	5.36
CD (5%)	1456.42	2292.952	1449.91	9.51	7.92	8.04	14.61	7.30	10.74	22.91	14.62	18.56
Polythene mulch												
M_0-Control	45304.23	52347.88	48826.06	158.27	176.59	167.43	187.68	213.62	200.65	345.95	390.21	368.08
M_1-Mulch	51488.10	60780.42	56134.26	199.87	203.70	201.79	221.73	237.10	229.41	421.59	440.81	431.20
SE (m) ±	188.52	340.6312	209.85	0.60	0.65	0.46	0.78	0.66	0.46	0.95	1.13	0.79
CD (5%)	614.80	1110.858	684.37	1.97	2.11	1.50	2.53	2.14	1.51	3.10	3.69	2.58
Growth stimulants												
P_0-Control	47156.08	54662.70	50909.39	170.87	184.85	177.86	196.86	217.26	207.06	367.72	402.12	384.92
P_1-Panch. + Amrutpani	49636.24	58465.61	54050.93	187.27	195.44	191.35	212.55	233.47	223.01	399.82	428.90	414.36
SE (m) ±	134.19	179.00	113.45	0.38	0.42	0.33	0.43	0.50	0.29	0.58	0.75	0.49
CD (5%)	402.33	536.67	340.15	1.13	1.27	0.99	1.30	1.51	0.88	1.73	2.25	1.46
Interactions												
F X M	NS	NS	NS	NS	SIG	SIG	NS	NS	NS	NS	NS	NS
F X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F X M X P	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GM	48396.2	56564.15	52480.16	179.07	190.15	184.61	204.70	225.36	215.03	383.77	415.51	399.64

References

1. Gosavi SP, Chavan SA, Bhagat SB. Effect of fertilizer and level of FYM on yield, quality and nutrient uptake of sweet corn (*Zea mays* L. saccharata). Journal of Soils and Crops. 2006; 19(1):92-96.

2. Karki TB, Ashok Kumar, Gautam RC. Influence of integrated nutrient management on growth, yield, content and uptake of nutrients and soil fertility status in maize (*Zea mays*) in New Delhi. Indian Journal of Agricultural Sciences. 2005; 75(10):682-685.
3. Khadtare SV, Patel MV, Mokashi DD, Jadhav JD. Influence of vermicompost on quality parameters and soil fertility status of sweet corn. Journal of Soils and Crops. 2006; 16(2):384-389.
4. Kumar Ashok, Gautam RC, Ranbir Singh, Rana KS. Growth, yield and economics of maize-wheat cropping sequence as influenced by integrated nutrient management of New Delhi. Indian Journal of Agricultural Sciences. 2005; 75(1):709-711.
5. Panse VG, Sukhatme PV. Statistical Methods for Agricultural Workers, ICAR, New Delhi, 1985.
6. Patra PS, Biswas S. Integrated nutrient management on growth, yield and economics of maize (*Zea mays* L.) under terai region. Journal of Crop and Weed. 2009; 5(1):136-139.
7. Rasool S, Raihana HK, Shabana H, Bashir AA, Waseem R, Dar ZA. Effect of Integrated Nutrient Management on Yield and Yield Attributes of Sweet Corn (*Zea mays* L. saccharata) Under Wet Temperate Conditions of Western Himalayas (India). American Journal of Experimental Agriculture. 2016; 13(2):1-9.
8. Samsul H, Patra PS, Saha A. Growth attributes, cob yield and economics of maize (*Zea mays* L.) cultivars as affected by integrated nutrient management under terai region of West Bengal. Indian Journal of Agricultural Research. 2012; 46(1):42-47.
9. Subbian P, Palaniapppan SP. Effect of integrated management practices on the yield and economics of crops under high density multiple cropping systems. Indian Journal of Agronomy. 1992; 57(1):1-5.
10. Zelalem B. Effect of enriched farmyard manure and inorganic fertilizers on grain yield and harvest index of hybrid maize (bh-140) at Chiro, eastern Ethiopia. African Journal of Agricultural Research. 2014; 9(7):663-669.