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Influence on crop growth and yield of sweet corn under vegetable intercropping systems and nutrient management

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Abstract
A field experimentation was conducted at wetland farm, S.V. Agricultural College, Tirupati of Acharya N.G. Ranga Agricultural University during *rabi*, 2020 to study and evaluate the crop growth and yield of sweet corn under different vegetable intercropping systems and nutrient management. The research was carried out in split plot design and replicated thrice. The treatments consisted of three intercrops *viz*., sweet corn + knol khol (I_1), sweet corn + radish (I_2) and sweet corn + onion (I_3) as main plots and four nutrient levels *viz*., 100 % RDF to sweet corn alone (N_1), 100 % RDF to sweet corn + 75 % RDF to intercrop (N_2), 100 % RDF to sweet corn + 50 % RDF to intercrop (N_3) and 100 % RDF to sweet corn + 25 % RDF to intercrop (N_4) as sub plots. The results revealed that among the intercrops, sweet corn + knol khol (I_1) has recorded significantly higher plant height, leaf area index, dry matter production, green cob yield (6090 kg ha^{-1}) and green fodder yield (12304 kg ha^{-1}). However, among the nutrient management practices, 100 % RDF to sweet corn + 75 % RDF to intercrop (N_2) has recorded significantly higher plant height, leaf area index, dry matter production, green cob yield (6211 kg ha^{-1}) and green fodder yield (12546 kg ha^{-1}).

Keywords: Sweet corn, intercrops, nutrient management, green cob and fodder yield

Introduction

Maize is the third most important cereal crop after rice and wheat in India as well as in the world also called as Queen of Cereals due to its higher genetic yield potential. It is cultivated in tropical, subtropical and temperate countries of the world. In India, roughly a quarter of the maize yield is allocated for human consumption, nearly half is utilized in poultry, with 12 percent serving as cattle feed, another 12 percent directed towards food processing industries, primarily for starch production and the remaining one percent apportioned to the brewery and seed sectors (Jat *et al*., 2009) [2]. In India, it is grown in an area of 9.2 million hectares with a production of 27.8 million tones. In Andhra Pradesh it is grown in an area of 3.01 lakh hectares with a production of 21.21 lakh tones (www.indiastat.com). Maize is being used as food, fodder and but also for corn starch industry, corn oil production, baby corns etc. Recently, it has extended its potentiality in the field of vegetable production. Sweet corn (*Z. mays L. saccharata*) also known as sugar corn is hybridized version of maize specifically breed to increase the sugar content. From the beginning of 20th Century, sweet corn has become a distinctly beloved cereal / vegetable in USA, Canada, Japan and China. Recently, it is gaining popularity among nutritive and health-conscious urban mass in India. Sweet corn is rich in sugars, dietary fiber, vitamin C, beta-carotene, niacin, as well as calcium and potassium, making it an exceptional nutritional resource (www.organicfood.com).

Sweet corn exhibits great adaptability to various row spacings and nutrient management techniques due to its C4 metabolic pathway. Its efficient conversion of solar energy into dry matter makes it a highly productive crop. Maize, known for its wide spacing, offers opportunities for intercropping within the available space between rows. Combining crops is essential for optimizing resource utilization per unit area, enhancing yields and maintaining soil health. In this regard, sweet corn can be intercropped with short duration crops like legumes, leafy vegetables and other vegetables due to demand of these crops in periurban areas.

It also guarantees greater land occupancy and fetches higher returns to the farmers. Vegetables form the most important component of our balanced diet. They are also considered as 'Protective food' as they contain vitamins, minerals and dietary fibres apart from proteins, lipids and carbohydrates of biological value. Vegetables such as knol khol, radish and onion can be taken as intercrops in sweet corn production. Maize productivity hinges on managing key nutrients like nitrogen, phosphorus and potassium. In intercropping, individual crop nutrient efficiency tends to decrease compared to sole crops. However, intercropping allows for better nutrient utilization, as wasted nutrients from long-term crops can be absorbed by associated crops between rows. Fertilizer needs vary based on intercrop composition. Research is needed to determine optimal fertilizer dosages for sweet corn intercropping with vegetables, as well as how nutrient levels affect growth and yield. Providing such information can assist farmers in maximizing maize-based intercropping productivity, potentially leading to increased overall income. Keeping all these things in view, field experimentation was conducted to study the impact of crop growth and yield of sweet corn as influenced by nutrient management and vegetable intercropping systems.

Materials and Methods

Field research was conducted at the wetland farm of S.V. Agricultural College, Tirupati, belonging to Acharya N.G. Ranga Agricultural University, during the rabi season of 2020 which is located at 13.5°N latitude and 79.5°E longitude with an altitude of 182.9 m above mean sea level, which falls under Southern Agro-Climatic Zone of Andhra Pradesh. The soil displayed a sandy clay loam texture, characterized by a low organic carbon content, with a soil pH of 6.8 and an electrical conductivity (EC) of 0.65 dSm^{-1}. Initially, the soil had medium levels of nitrogen, phosphorus and potassium, measuring at 152, 33 and 216 kg ha^{-1} respectively. The experiment was structured using a split-plot design and was replicated three times. There were 12 treatments consisted of three intercrops *viz*., sweet corn + knol khol (I_1), sweet corn + radish (I_2) and sweet corn + onion (I_3) as main plots and four nutrient levels *viz*., 100 % RDF to sweet corn alone (N_1), 100 % RDF to sweet corn + 75 % RDF to intercrop (N_2), 100 % RDF to sweet corn + 50 % RDF to intercrop (N_3) and 100 % RDF to sweet corn + 25 % RDF to intercrop (N_4) as sub plots. The pure crops of the respective intercrops and sole crops were raised separately. Fertilizers were applied to the both main and intercrop as per the treatment details (RDF for sweet corn -120: 60: 50, knol khol- 100: 60: 60, radish- 50: 100: 50 and onion- 80: 50: 80, kg N, P_2O_5, K_2O ha^{-1}, respectively). Observations of crop growth and yield were recorded at intervals of 20, 40 and 60 days following sowing, as well as at the time of harvest. The data recorded on various parameters of growth and yield during the course of investigation were statistically analyzed for analysis of variance and statistical significance was tested with 'F' value at 5 percent level of probability and wherever the 'F' test value was found significant, critical difference was worked out and the values were furnished.

Table 1: Plant height (cm) of sweet corn at different growth stages as influenced by intercropping and nutrient levels

Treatments	Plant height			
	20 DAS	40 DAS	60 DAS	At harvest
Intercropping				
I_1: Sweet corn + Knol khol	36.9	89	155	164
I_2: Sweet corn + Radish	33.4	81	141	149
I_3: Sweet corn + Onion	34.5	83	146	154
S.Em±	0.81	1.97	3.43	3.63
CD (P=0.05)	NS	7.0	13.0	14.0
Nutrient levels				
N_1: 100 % RDF to sweet corn alone	33.7	81	142	150
N_2: 100 % RDF to sweet corn + 75 % RDF to intercrop	37.7	91	159	168
N_3: 100 % RDF to sweet corn + 50 % RDF to intercrop	34.7	83	146	154
N_4: 100 % RDF to sweet corn + 25 % RDF to intercrop	33.9	82	143	151
S.Em±	0.93	2.26	3.93	4.16
CD (P=0.05)	2.8	7.0	12	12
Intercropping (I) x Nutrient levels (N)				
I at same level of N				
S.Em±	1.62	3.92	6.82	7.22
CD (P=0.05)	NS	NS	NS	NS
N at same level of I				
S.Em±	1.61	3.91	6.81	7.20
CD (P=0.05)	NS	NS	NS	NS

Table 2: Leaf area index of sweet corn at different growth stages as influenced by intercropping and nutrient levels

Treatments	Leaf area index			
	20 DAS	**40 DAS**	**60 DAS**	**At harvest**
Intercropping				
I_1: Sweet corn + Knol khol	0.86	0.91	2.51	1.52
I_2: Sweet corn + Radish	0.75	0.80	2.40	1.40
I_3: Sweet corn + Onion	0.76	0.81	2.41	1.43
S.Em±	0.033	0.04	0.04	0.032
CD (P=0.05)	NS	NS	NS	NS
Nutrient levels				
N_1: 100 % RDF to sweet corn alone	0.63	0.68	2.28	1.29
N_2: 100 % RDF to sweet corn + 75 % RDF to intercrop	1.08	1.13	2.74	1.73
N_3: 100 % RDF to sweet corn + 50 % RDF to intercrop	0.80	0.85	2.45	1.45
N_4: 100 % RDF to sweet corn + 25 % RDF to intercrop	0.65	0.7	2.3	1.30
S.Em±	0.054	0.600	0.054	0.052
CD (P=0.05)	0.15	0.16	0.15	0.15
Intercropping (I) x Nutrient levels (N)				
I at same level of N				
S.Em±	0.070	0.086	0.087	0.086
CD (P=0.05)	NS	NS	NS	NS
N at same level of I				
S.Em±	0.090	0.092	0.093	0.092
CD (P=0.05)	NS	NS	NS	NS

Table 3: Dry matter production (kg ha^{-1}) of sweet corn at different growth stages as influenced by intercropping and nutrient levels

Treatments	Dry matter production			
	20 DAS	**40 DAS**	**60 DAS**	**At harvest**
Intercropping				
I_1: Sweet corn + Knol khol	143	612	5543	7121
I_2: Sweet corn + Radish	129	554	5016	6445
I_3: Sweet corn + Onion	134	573	5189	6666
S.Em±	3.15	13.5	122.4	157.3
CD (P=0.05)	NS	53	481	618
Nutrient levels				
N_1: 100 % RDF to sweet corn alone	130	558	5059	6499
N_2: 100 % RDF to sweet corn + 75 % RDF to intercrop	146	624	5652	7261
N_3: 100 % RDF to sweet corn + 50 % RDF to intercrop	134	574	5204	6686
N_4: 100 % RDF to sweet corn + 25 % RDF to intercrop	131	561	5083	6530
S.Em±	3.61	15.4	140.1	180.1
CD (P=0.05)	11	46	416	535
Intercropping (I) x Nutrient levels (N)				
I at same level of N				
S.Em±	6.27	26.8	243.3	312.6
CD (P=0.05)	NS	NS	723	929
N at same level of I				
S.Em±	6.25	26.8	243.7	311.9
CD (P=0.05)	NS	NS	721	927

Table 3a: Interaction effect of intercropping and nutrient levels on dry matter production (kg ha^{-1}) of sweet corn at 60 DAS

Interaction				
Treatments	**Sweet corn + Knol khol (I1)**	**Sweet corn + Radish (I2)**	**Sweet corn + Onion (I3)**	**Mean**
N1	5157	5059	4961	5059
N2	6185	5197	5574	5652
N3	5623	4884	5105	5204
N4	5206	4926	5116	5083
Mean	5543	5017		
		S.Em±	**CD (=0.05)**	
	I	122.1	481	
	N	140.1	416	
	I at N	243.3	723	
	N at I	243.7	721	

Table 3b: Interaction effect of intercropping and nutrient levels on dry matter production (kg ha^{-1}) of sweet corn at 90 DAS

Interaction				
Treatments	**Sweet corn + Knol khol (I1)**	**Sweet corn + radish (I2)**	**Sweet corn + Onion (i3)**	**Mean**
N1	6625	6500	6373	6499
N2	7947	6676	7161	7261
N3	7225	6275	6558	6686
N4	6688	6328	6573	6530
Mean	7121	6445	6666	
		S.Em±	**CD (=0.05)**	
	I	157.3	618	
	N	180.1	535	
	I at N	311.9	927	
	N at I	312.6	929	

Table 4: Yield of sweet corn (kg ha^{-1}) as influenced by intercropping and nutrient levels

Treatments	Green cob yield	Green fodder yield
Intercropping		
I_1: Sweet corn + Knol khol	6090	12304
I_2: Sweet corn + Radish	5512	11135
I_3: Sweet corn + Onion	5701	11518
S.Em±	134.6	271.9
CD (P=0.05)	528	1068
Nutrient levels		
N_1: 100 % RDF to sweet corn alone	5559	11229
N_2: 100 % RDF to sweet corn + 75 % RDF to intercrop	6211	12546
N_3: 100 % RDF to sweet corn + 50 % RDF to intercrop	5719	11552
N_4: 100 % RDF to sweet corn + 25 % RDF to intercrop	5585	11282
S.Em±	154.0	311.1
CD (P=0.05)	458	924
Intercropping (I) x Nutrient levels (N)		
I at same level of N		
S.Em±	267.4	540.2
CD (P=0.05)	NS	1605
N at same level of I		
S.Em±	266.7	538.9
CD (P=0.05)	NS	1601

Table 4a: Interaction effect of intercropping and nutrient levels on green fodder yield (kg ha^{-1}) of sweet corn

Interaction				
Treatments	**Sweet corn + Knol khol (I1)**	**Sweet corn + radish (I2)**	**Sweet corn + Onion (i3)**	**Mean**
N1	11446	11230	11012	11229
N2	13730	11535	12372	12546
N3	12482	10841	11331	11551
N4	11556	10933	11356	11282
Mean	12304	11135	11518	
		S.Em±	CD (p=0.05)	
	I	271.9	1068	
	N	311.1	924	
	I at N	538.9	1601	
	N at I	540.2	1605	

Table 5: Yield of inter crops (kg ha^{-1}) as influenced by intercropping and nutrient levels

Treatments	Economic yield	Biological yield
(Sweet corn + Knol khol)+ N_1	4100	6450
(Sweet corn + Knol khol)+ N_2	5100	7080
(Sweet corn + Knol khol)+ N_3	4860	6890
(Sweet corn + Knol khol)+ N_4	4390	6500
(Sweet corn + Radish)+ N_1	8390	11450
(Sweet corn + Radish)+ N_2	9050	12560
(Sweet corn + Radish)+ N_3	8780	12090
(Sweet corn + Radish)+ N_4	8650	11900
(Sweet corn + Onion)+ N_1	3700	4740
(Sweet corn + Onion) + N_2	4400	5637
(Sweet corn + Onion) + N_3	4220	5407
(Sweet corn + Onion) + N_4	4000	5000
Sole knol khol	12500	16500
Sole radish	15650	20680
Sole onion	10450	13390
Sole sweet corn	6900	19900

N_1 - 100 % RDF to sweet corn alone
N_2 - 100 % RDF to sweet corn + 75 % RDF to intercrop
N_3 - 100 % RDF to sweet corn + 50 % RDF to intercrop
N_4 - 100 % RDF to sweet corn + 25 % RDF to intercrop

Results and Discussion

Growth parameters

Plant height

The height of sweet corn plants showed a steady increase as the crop aged until harvest (Table 1). At 20 days after sowing (DAS), intercropping did not have a significant impact on the plant height of sweet corn intercropping system. Effect of intercropping and nutrient levels on plant height of sweet corn was recorded to be significant at different growth stages *viz*., 40, 60 DAS and at harvest. Interaction effect of intercropping and nutrient levels on plant height of sweet corn was not statistically traced at any stage of sampling.

Among different intercropping systems, sweet corn was grown with knol khol has recorded significantly higher plant height at 40, 60 DAS and at harvest, (89, 155 and 164 cm, respectively), followed by that with onion (83, 146 and 154 cm, respectively).

When considering nutrient levels, applying 100% recommended dose of fertilizer (RDF) to sweet corn alongside 75% RDF to the intercrop resulted in notably taller sweet corn plants at 20, 40, 60 days after sowing and at harvest (37.7, 91, 159 and 168 cm, respectively). Following closely, applying 100% RDF to sweet corn with 50% RDF to intercrop led to plant height (34.7, 83, 146 and 154 cm, respectively), which were comparable to those achieved with 100% RDF to sweet corn alongside 25% RDF to intercrop (33.9, 82, 143 and 151 cm, respectively). Conversely, applying 100% RDF solely to sweet corn resulted in shorter plant heights (33.7, 81, 142 and 150 cm, respectively), statistically similar to those observed with N_4.

The increased height of sweet corn plants observed with 100% recommended dose of fertilizer applied to sweet corn and 75% recommended dose applied to the intercrop (N_2) may be attributed to enhanced nutrient availability facilitating sufficient nutrient absorption in the intercropping system. These findings were in close conformity with those of Dwivedi *et al.* (2015) [1], Latha *et al.* (2008) [4] and Razie *et al.* (2018) [7].

Leaf area index

The leaf area index of sweet corn tended to rise as the crop aged up to 60 days after sowing, then decreased towards harvest. Intercropping systems did not notably affect the leaf area index, but varying nutrient levels at different growth stages (20, 40, 60 DAS and at harvest) significantly altered it (Table 2). There was no significant interaction effect between intercropping and nutrient levels on the leaf area index of sweet corn.

Comparatively higher leaf area index of sweet corn was observed at 20, 40, 60 DAS and at harvest, when sweet corn was intercropped with knol khol (0.86, 0.92, 2.51 and 1.52, respectively) followed by that with onion (0.76, 0.81, 2.41 and 1.43, respectively) and radish (0.75, 0.80, 2.40 and 1.40, respectively).

The higher leaf area index was recorded with the treatment that received 100 % RDF to sweet corn + 75 % RDF to intercrop at 20, 40, 60 DAS and at harvest (1.08, 1.13, 2.74 and 1,73, respectively), which was significantly superior to all other nutrient levels tried. The next best treatment was 100 % RDF to sweet corn + 50 % RDF to intercrop (0.80, 0.85, 2.54 and 1.45, respectively) which was however on par with that of 100 % RDF to sweet corn + 25 % RDF to intercrop (0.65, 0.70, 2.30 and 1.30, respectively). Applying 100% recommended dose of fertilizer exclusively to sweet corn (0.63, 0.91, 2.51 and 1.52, respectively) led to a reduction in leaf area index.

The rise in leaf area observed with 100% recommended dose of fertilizer applied to sweet corn alongside 75% RDF applied to the intercrop (N_2) across all sampling intervals could potentially be attributed to the ample nutrient supply within the intercropping system, which resulted in leaf expansion, more number of functional leaves and also due to its favourable effect on triggering of leaf primordia added with cell division, cell enlargement, resulting in production of larger leaves. These results are compatible with findings of Zhang *et al.* (2014) [9].

Dry matter production

The dry matter production of sweet corn increased progressively with the advance in age of the crop upto harvest (Table 3). Effect of intercropping on dry matter production of sweet corn at 20 DAS was found to be non-significant. The dry matter production of sweet corn at various growth stages, specifically 40 and 60 days after sowing, as well as at harvest, was notably impacted by both intercropping and nutrient levels. The interaction effect between intercropping and nutrient levels didn't show significance at 20 and 40 DAS, but became significant at 60 DAS and at the time of harvest (Table 3a and 3b).

The dry matter production of sweet corn was found to be significantly higher when intercropped with knol khol, yielding 612 kg ha^{-1} at 40 DAS, 5543 kg ha^{-1} at 60 DAS and 7121 kg ha^{-1} at harvest. Following this, sweet corn intercropped with onion also exhibited notable dry matter production, with yields of 573 kg ha^{-1}, 5189 kg ha^{-1} and 6666 kg ha^{-1} at the respective stages. Conversely, the lowest dry matter production for sweet corn was observed in the sweet corn + radish intercropping, with yields of 554 kg ha^{-1}, 5016 kg ha^{-1} and 6445 kg ha^{-1} at the same stages.

Experimenting with various nutrient levels, it was found that applying 100% RDF to sweet corn along with 75% RDF to the intercrop led to notably increased dry matter accumulation at 20, 40, 60 DAS and as well as at harvest, (146, 624, 5652 and 7261 kg ha^{-1}, respectively). This was followed by that with 100 % RDF to sweet corn + 50 % RDF to intercrop (134, 574, 5204 and 6686 kg ha^{-1}, respectively) and 100 % RDF to sweet corn + 25 % RDF to intercrop (131, 561, 5083 and 6530 kg ha^{-1}, respectively) and 100 % RDF to sweet corn alone (130, 558, 5059 and 6499 kg ha^{-1}, respectively), which were comparable with each other.

Higher dry matter production with sweet corn + knol khol intercropping might be due to better utilization of growth resources. The increased dry matter production of sweet corn resulting from applying 100% RDF to sweet corn and 75% RDF to the intercrop (N_2) can be attributed to elevated plant height and leaf area index. These factors likely facilitated a higher net photosynthetic rate and increased nutrient uptake, ultimately leading to greater dry matter production. These results are compatible with findings of Irfan *et al*. (2020) [3] and Zhang *et al.* (2014) [9].

As regards to interaction effect of intercropping and nutrient levels on dry matter production (Table 3a and 3b) of sweet corn at 60 DAS and at harvest, sweet corn + knol khol supplied with 100 % RDF to sweet corn + 75 % RDF to intercrop (I_1N_2) recorded higher dry matter production (6185 and 7947 kg ha^{-1}, respectively). This was followed by sweet corn + knol khol supplied with 100 % RDF to sweet corn + 50 % RDF to intercrop (I_1N_3), which was however comparable with sweet corn + onion supplied with 100 % RDF to sweet corn + 75 % RDF to intercrop (I_3N_2). Lower dry matter production (4884 and 6275 kg ha^{-1}, respectively) was recorded with sweet corn + radish supplied with 100 % RDF to sweet corn + 50 % RDF to intercrop (I_2N_3), which was however on par with that dry matter at sweet corn + radish supplied with 100 % RDF to sweet corn + 25 % RDF to intercrop (I_2N_4).

Yield of sweet corn

Effect of intercropping and nutrient levels on green cob yield and green fodder yield was recorded to be significant (Table 4). Interaction effect of intercropping and nutrient levels found non-significant on green cob yield of sweet corn, but found significant to green fodder yield of sweet corn (Table 4a).

Significantly, higher green cob and fodder yield were recorded with sweet corn + knol khol (I_1) intercropping (6090 and 12304 kg ha^{-1}, respectively), which was however on par with that of sweet corn + onion (I_3) intercropping. Sweet corn + radish (I_2) intercropping (5512 and 11135 kg ha^{-1}, respectively) recorded lower green cob and fodder yield of sweet corn, which was in turn on par with sweet corn + onion (I_3) intercropping. Higher cob and fodder yield with sweet corn + knol khol intercropping might be due to better utilization of growth resources and higher growth and yield attributes.

Significantly, the higher yields of green cob and fodder for sweet corn were achieved when applying 100 % RDF to sweet corn alongside 75% RDF to the intercrop resulting in 6211 and 12546 kg ha^{-1}, respectively. Following closely were treatments where 100% RDF was applied to sweet corn along with 50% RDF to the intercrop (N_3), 100% RDF to sweet corn alongside 25% RDF to the intercrop (N_4) and solely applying 100% RDF to sweet corn (N_1), in descending order of yield, with no significant differences observed between any two of them. Increase in green cob and fodder yield of sweet corn with 100 % RDF to sweet corn + 75 % RDF to intercrop (N_2) might be due to effective utilization of nutrients, higher nutrient uptake of sweet corn, higher growth and yield attributes of sweet corn. The decrease in green cob and fodder yield of sweet corn with 100 % RDF to sweet corn alone (N_1) was due to lower growth and yield attributes and insufficiency of nutrients. These results were in accordance with the findings of Irfan *et al.* (2020) [3], Naik *et al.* (2017) [5] and Obasi *et al.* (2012) [6].

As regards to interaction effect (Table 4a) of intercropping and nutrient levels on green fodder yield of sweet corn, sweet corn + knol khol supplied with 100 % RDF to sweet corn + 75 % RDF to intercrop (I_1N_2) recorded higher green fodder yield. This was followed by sweet corn + knol khol supplied with 100 % RDF to sweet corn + 50 % RDF to intercrop (I_1N_3), which was however comparable with sweet corn + onion supplied with 100 % RDF to sweet corn + 75 % RDF to intercrop (I_3N_2). Lower green fodder yield was recorded with sweet corn + radish supplied with 100 % RDF to sweet corn + 50 % RDF to intercrop (I_2N_3), which was however on par with that green fodder yield at sweet corn + radish supplied with 100 % RDF to sweet corn + 25 % RDF to intercrop (I_2N_4). The boost in green fodder yield of sweet corn attributed to N_2 could be a result of heightened vegetative growth, evidenced by taller plants, increased leaf area and elevated dry matter production. Similar results were also reported by Irfan *et al.* (2020) [3] and Soleymani and shahrajabian (2012) [8].

Yield of intercrops

Both the economic and biological yield of all intercrops under sole crop of unreplicated plot recorded was higher as compared to crops sown under intercropping (Table 5).

The highest economic and biological yields of knol khol, radish and onion were observed when 100% recommended dose of fertilizer was applied to sweet corn along with 75%, 50%, or 25% RDF to the intercrop (N_2, N_3 and N_4, respectively). This resulted in yields of 5100 and 7080 kg ha^{-1} for knol khol, 9050 and 12560 kg ha^{-1} for radish and 4400 and 5637 kg ha^{-1} for onion. Conversely, applying 100% RDF to sweet corn alone (N_1) led to lower yields for all three intercrops. The superior yield with N_2 treatment is attributed to improved growth parameters and efficient allocation of photosynthates from source to sink.

Conclusion

It can be concluded that intercropping of knol khol with application of 100 % RDF to sweet corn + 75 % RDF to intercrop (N_2) has realized higher crop growth parameters, green cob and fodder yield of sweet corn under Southern Agro-Climatic Zone of Andhra Pradesh.

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