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Cabbage intercropping with spring sugarcane for doubling the Farmers income in Western U.P.

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Abstract

Sugarcane is the main crop of the western Uttar Pradesh covering with 55-60 percent of total area. Most of the farmers were growing sugarcane as sole crop and got average yield 775-800 q/ha with the Rs 1.72 lakhs/ha/year net return, resulting the income of farmers was not good. To keeping in view cabbage intercropping with spring sugarcane was promoted through transfer of technology. In this system Cabbage (G-65) nursery was sown in last week of January in low tunnel poly-house and after twenty five days field prepared and sugar cane crop was sown through improved trench planting method at the row to row 90 cm. distance in trench and Cabbage nursery transplanted on raised bed between two rows of sugarcane at the distance of 35x35 cm. The recommended dose of fertilizer was uses as basal doses (Half dose of N₂ and Full doses of P₂O₅ & K₂O) on the soil testing based. After that time to time cultural practices like weeding irrigation and plant protection activities conducted as per needs. In the month of May cabbage crop harvested and sold. After harvesting the of cabbage crop all cultural practices like digging, weeding and irrigation completed in sugarcane crop. In this technology cabbage yield 240qt/ha and Sugarcane average yield 850 qt/Ha. The net return was Rs 3.75 lacs/ha and in net return in sole crop was Rs 1.72 lakh/ha. Results revealed that Cabbage inter cropping increasing the income in comparison to sole crop of sugarcane.

Keywords: Cabbage, intercropping, spring sugarcane, doubling the Farmers income

Introduction

India is the second largest producer of sugarcane after Brazil with a global share of 17% (2014-15). In India sugarcane is cultivated broadly under two distinct Agro climatic conditions as Tropical and subtropical belts. The tropical belt comprising Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, Gujarat, Chhattisgarh, Odisha and Kerala accounts for 42.9% of the total area under sugarcane cultivation in the country and subtropical sugarcane region contributes around 57.1% of total cane area in the country. The Uttar Pradesh, Bihar, Punjab, Haryana, Uttarakhand, Madhya Pradesh, Rajasthan, West Bengal, Jharkhand, Assam and other north and north eastern state are come in subtropical belt. Among states Uttar Pradesh is the main cane growing state in the country allocating about 2.2 million ha. area (43.7%) for cane cultivation and Maharashtra second cane cultivation state with 19.6% cane area. In Uttar Pradesh Western Uttar Pradesh is major sugar cane grower with about 60% area covering of sugarcane.

In Western U.P. sugarcane is the most commercial crop. Wheat, sugarcane, wheat is the main crop rotation having 154% cropping intensity. Farmers growing the spring and late spring crop covering with 70% area of total sown area of Western Uttar Pradesh. In Western U.P. about 87% farmer's is small and marginal farmer's category. Most of the farmers growing of sugarcane as Sole crops.

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Small sugarcane growers need not wait until the harvest of sole crop to obtain financial returns. Intercropping of important short duration crop (Cabbage) with sugarcane through utilization of the present limited land resources would help to sustain sugarcane cultivation and provide interim return to small and marginal farmers.

In Western Uttar Pradesh farmers transplanted spring sugar cane in month of February. Cabbage cane grows as intercrop. Because there is higher demand of vegetables in the market in the month of May and June. Since the consumption of vegetable is increasing as faster rate in modern time as these are supplementary item in human diet.

Recently government of Indian is also focusing target of doubling farmer's income by 2022 and taking various steps to achieve this objective. The cabbage intercropping with spring sugarcane is also one step towards doubling income of farmers.

In the Western Uttar Pradesh sugarcane is normally planted in spring (February-March) this planting of sugarcane in variably yields 25-30%.

Materials & Methods

Table 1: Details of Cabbage intercropping with spring sugarcane

Name of crop	Variety	Row to Row distance (cm)	Sowing duration	Plant to plant distance (cm)	Seed rate/ha	Application of fertilizers (kg/ha)		
						N	P	K
Sugarcane (Main crop)	Co-0238	90	2 nd week of Feb.	30	75 qt	180	60	50
Cabbage (Intercrop)	G-65	35	2 nd week of Feb.	35	350g	80	40	40

Table 2: Cabbage intercropping with spring sugarcane

S. No.	Detail	Cabbage intercropping with spring sugarcane	Sole crop of sugarcane
1	Main crop	Sugarcane (Co-0238)	Sugarcane (Co-0238)
2	Intercrop	Cabbage (G-65)	-
3	Sowing time	Sugarcane-2 nd week of February	Sugarcane-2 nd week of February
		Cabbage-2 nd week of February	-
4	Seed rate	Sugarcane-75 qt/ha	Sugarcane-75 qt/ha
		Cabbage-350 gm/ha	-
5	Cost of Cultivation	Rs.1.45 Lakh/ha	Rs-0.90 Lakh/ha
6	Mill able	226	232
7	Production	Sugarcane-850 qt/ha	Sugarcane-875 qt/ha
		Cabbage-240 qt/ha	-
8	Total Return	Sugarcane-2.38 Lakhs	Rs-2.45 Lakhs
		Cabbage-2.82 Lakhs	-
9	Net Return	Rs-3.75 Lakhs	Rs-1.55 Lakhs
10	CB Ratio	1:2.58	1:1.72

Note: Sugarcane @Rs 280/qt, Cabbage @Rs 1200/qt

Results & Discussions

In table No.2 data show that sowing time and method of sugarcane planted were same. Seed requirement of sugarcane in cabbage inter cropping is 75q/ha and it is also 75q/ha in sole crop but cost of cultivation increase Rs. 1.45 lakh/ha and Rs 0.90 lakh/ha is in sole crop. Its increase 61% in comparison to sole crop. Production of sugarcane is 850qt/ha in intercropping cabbage yield 2.40qt/ha. Sugarcane yield in sole crop was 875qt/ha.

Total return in Cabbage intercropping is Rs 5.20 Lakhs/ha and Rs 2.45 Lakhs/ha in sole crop. The total return is 2.01% is excess in comparison to sole crop of sugarcane. The net return is more (Rs 3.75 Lakhs) in comparison to sole crop of sugarcane (Rs 1.55 Lakhs) Ahmed, M.S. Cheema, M.S. and Muhamonad, G. (1997) [1] supported the intercropping system. The benefit cost rate on 2.58 is significant higher in comparison to sole crop (1.72). Data of net return revealed that cabbage intercropping with spring sugarcane play the

To keeping in view of the increasing income of farmers this study was carried out during 2016-17 in district Saharanpur of western Uttar Pradesh. For this study 32 farmers were selected from 8 villages covering two blocks Nagal and Puwarika. Cabbage (Variety G-65) nursery was rising in the last week of January under low tunnel poly house. Sugarcane was planted through improved trench method in furrows at 90 cm apart keeping three budded setts as 30 cm row length in the second week of February Khan, N.U., Pal, S.K., A.S.M.M.J and Hassain, A.H.M.D. (1995) [3] promoted double row intercropping. Sugarcane fertilized N₂ 180kg/ha, ½N₂ at planting as based dressing+1/2 in two equal split doses as top dressing after harvesting of cabbage at proper moisture while intercrop are given one third of total N + full doses of P₂O₅ and K₂O at their transplanting on 2nd week of February just after sugarcane planting and remaining half N is top dressed after 30 day of trans planting. Cabbage nursery trans planted at the distance of 35x35 cm between tow row of sugarcane on raised bed Alam, J.M., Islam, M.A., Rahman, M.M and Zaman, A.K.M.M. (2000) [2] supported. After that cultural practices done as per need time to time. Observations are given below.

significant role toward doubling the income of the farmers. Residual of cabbage also increased the organic matter in the soil and increased the sustainability of the soil. Lithourgid is AS. Dordas CA. Damalas CA. Annual (2011) [4] and Nasir Ahmad, S. (1999) [5] also supported the present investigation. Cabbage intercropping with spring sugarcane also promote the maximum utilization of inputs, soil and water etc.,

Conclusion

On the basis of present investigation cabbage inter cropping with spring sugar cane proves that cabbage intercropping with sugarcane plantation is profitable in comparison to sole crop of sugarcane cultivation and increase the sustainability of soil. Thus, cabbage intercropping with spring plantation of sugar cane should be promoted for doubling the farmers income. With this system Natural resources like soil and water proper utilization and input use efficiency also increased.

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