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Short Communication

Economic of sweet corn as influenced by weed management practices

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Abstract
Maize has been an important cereal because of its great production potential and adoptability to wide range of environments. Maize occupies an important place in Indian economy. In Indian agriculture, maize assumes a special significance on account of its utilization as food, feed and fodder. The highest cost of cultivation was observed in hand weeding twice treatment. Maximum gross, net returns and benefit cost ratio were obtained in atrazine 1.25 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS treatment.

Keywords: maize, fodder and atrazine

Introduction
Maize (*Zea mays* L.) belong to family poaceae is a one of the most important staple food crop of the world and ranks next to wheat and rice. Maize has been an important cereal because of its great production potential and adoptability to wide range of environments. Maize occupies an important place in Indian economy. Maize is considered as the "Queen of Cereals". Being a C_4 plant, it is capable to utilize solar radiation more efficiently even at higher radiation intensity. In Indian agriculture, maize assumes a special significance on account of its utilization as food, feed and fodder besides several industrial uses for the production of starch, syrup, alcohol, acetic acid, lactic acid etc. Sweet corn has highest edible quality in milk stage. In sweet corn best nutritional quality depends on moisture (72.7%) and total solids (22.3%) comprising of carbohydrate (81%), protein (13%) and lipids (3.5%). Yield loss due to weeds in maize varies from 28 to 93%, depending on the type of weed flora and intensity and duration of crop-weed competition (Sharma and Thakur, 1998) [5]. They reported that unchecked weed growth in sandy loam soils of Punjab reduced maize yield by 61.3% compared to weed free check. Weed infestation is a major constraint in maize cultivation that can cause 33 to 72% of yield loss (Thakur and Sharma, 1996) [6]. Reduction in Average global yield losses due to weed competition ranged from 34 to 60% (Akobundu 1987) [1].

Materials and Methods
The experiment was carried out during *rabi* season of 2016 at Research Cum Instructional Farm, Indira Gandhi Krishi Vishwavidyalaya, Raipur (Chhattisgarh). The field experiment was work out in randomize block design with 11 treatments *viz,* Oxadiargyl 0.090 kg *a.i.* ha^{-1}PE (T_1), Metribuzin 0.40 kg *a.i.* ha^{-1} PE (T_2), Atrazine 1.25 kg *a.i.* ha^{-1} PE (T_3), Tembotrione 0.120 kg *a.i.* ha^{-1} PoE (T_4), Sulfosulfuron 0.030 kg *a.i.* ha^{-1} PoE (T_5), Atrazine 1.25 kg *a.i.* ha^{-1}EPoE (T_6), Oxadiargyl 0.090 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS (T_7), Metribuzin 0.40 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS (T_8), Atrazine 1.25 kg a.i. ha^{-1} PE followed by one hoeing at 30 DAS (T_9), Hand weeding twice at 20 & 40 DAS (T_{10}) and Weedy check (T_{11}). Treatments were replicated thrice in randomize block design. The allocation of these treatments was done randomly and all the cultural practices were followed as per recommended.

Results and Discussion
The highest cost of cultivation was observed in hand weeding treatment (Rs. 52264.57 ha^{-1}) followed by tembotrione 0.120 kg *a.i.* ha^{-1} PoE (Rs.51099.57 ha^{-1}). This may be due to two hand weeding carried out to keep the plot weed free and lowest cost of cultivation was

obtained from weedy check (Rs. 45164.57 ha^{-1}). Maximum gross returns were obtained in atrazine 1.25 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS treatment (Rs. 270780.06 ha^{-1}) than hand weeding twice (Rs. 261977.37 ha^{-1}) and metribuzin 0.40 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS. While, lowest gross returns was observed in weedy check (Rs. 120050.15 ha^{-1}). Due to effective weed control in weed free check, it reduced the weed crop competition as a result vigorous crop growth was obtained which resulted in to higher yield as well as gross returns. The highest net returns were observed in atrazine 1.25 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS (Rs. 220140.49 ha^{-1}). However, the lowest net returns were observed in weedy check (Rs 74885.58 ha^{-1}). Benefit: cost ratio was influenced by various weed management practices. The highest benefit cost ratio was observed in atrazine 1.25 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS (4.35) than metribuzin 0.40 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS as PoE (4.02). This might be due to more cob and fodder yield and low cost of cultural and herbicidal weed control in this treatment. These results are closely in conformity with findings of {(Kar *et al*. 2006), Hawaldar (2012) and Arvadiya *et al*. (2012)} [4, 3, 2].

Table 1: Economic of sweet corn as influenced by various weed management practices

Treatments	Economics of sweet corn ha^{-1}			
	Total cost (Rs.)	**Gross return (Rs.)**	**Net return (Rs.)**	**B:C ratio**
T_1: Oxadiargyl 0.090 kg *a.i.* ha^{-1}PE	47480.27	204157.63	156677.36	3.30
T_2: Metribuzin 0.40 kg *a.i.* ha^{-1} PE	47461.17	211042.44	163581.27	3.45
T_3: Atrazine 1.25 kg *a.i.* ha^{-1} PE	47639.57	224607.87	176968.30	3.71
T_4: Tembotrione 0.120 kg *a.i.* ha^{-1} PoE	51099.57	242905.68	191806.11	3.75
T_5: Sulfosulfuron 0.030 kg *a.i.* ha^{-1} PoE	---------	---------	---------	-----
T_6: Atrazine 1.25 kg *a.i.* ha^{-1}EPoE	47639.57	235015.66	187376.09	3.93
T_7: Oxadiargyl 0.090 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS	50480.27	217681.83	167201.56	3.31
T_8: Metribuzin 0.40 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS	50461.17	253543.84	203082.67	4.02
T_9: Atrazine 1.25 kg a.i. ha^{-1} PE followed by one hoeing at 30 DAS	50639.57	270780.06	220140.49	4.35
T_{10}: Hand weeding twice at 20 & 40 DAS	52264.57	261977.37	209712.80	4.01
T_{11}: Weedy check	45164.57	120050.15	74885.58	1.66

Conclusion

The highest cost of cultivation was observed in hand weeding treatment (Rs. 52264.57 ha^{-1}) and maximum gross returns (Rs. 270780.06 ha^{-1}), net reuters (Rs. 220140.49 ha^{-1}) and benefit cost ratio (4.35) were obtained in atrazine 1.25 kg *a.i.* ha^{-1} PE followed by one hoeing at 30 DAS treatment.

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