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Effect of different weed management practices on onion quality attributes (*Allium cepa* L.)

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Abstract
The field experiment was conducted during Rabi season of 2016-17 at the Horticulture Research cum Instructional farm, BTC CARS, Bilaspur (C.G.). The treatments consisted of ten combination of different agro input management practices viz., T1 (control weedy check),T2 (weed free), T3 (Pendimethalin @ 1.75 kg/ha (pre-emergence)), T4 (Oxyfluorfen @ 1 kg/ha (pre-emergence)), T5 (Quizalofop-ethyl @1 kg/ha (Post-emergence)), T6 (Pendimethalin @ 1.750 kg/ha (Pre emergence) + Quizalofop-ethyl @ 1 kg/ha (Post-emergence)), T7 (Oxyfluorfen @ 1 kg/ha (Pre-emergence) + Quizalofop-ethyl @ 1 kg/ha (Postemergence)), T8 (Two hand weeding at 25 and 45 DAT), T9 (Black polythene mulch), T10 (Organic mulch with paddy straw @ 20 q/ha). The maximum TSS recored 11.67 T2 (weed free) and minimum TSS recorded 9.00 T1 (control weedy check).

Keywords: Pendimethalin, oxyfluorfen, quizalofop-ethyl, and onion

Introduction
Onion (*Allium cepa* L.) is one of the most important commercial vegetable crops grown all over the world. It is native of Central Asia and Mediterranean region. It belongs to family Alliaceae and the plant is either biennial or perennial. Its semi-cylindrical leaves emerge from a subterranean bulb, which bears fascicled, short and scarcely branched roots. The stem is erect and an umbel-like inflorescence composed of white or greenish-white small flowers grow at the tip of the stem. The fruit is capsule, which contain black flat seeds. The edible bulb is composed of several overlapping layers on a central core. Onion possess as culinary, dietary and medicinal importance in daily life of people in the whole world, it is also a major vegetable crop to gain foreign currency.

It becomes a major cash crop with higher market demand and price. It is popularly known as "Queen of kitchen" because of its characteristic flavour and taste of food. Onion is a condiment crop, which is consumed fresh in salads or added in cooking dishes as a spice. Apart from furnishing nutrition, onion also provides relishing flavours to our diets. Recent research has suggested that onion in the diet may play a part in preventing heart diseases and other aliments (Sangha and Baring, 2003).

In Chhattisgarh, it is being grown on an area of 20.06 (′000 ha) with a production of 308.10 (′000) mt and the productivity is 15.36 ton/ha (NHRDF, Nashik). The maximum cultivated area and production of onion is Mahasamund followed by Durg, Kanker, and Raipur district (Anon, 2013). Onion is very rich in various nutrients and vitamins like vitamin „A‟ thiamine, riboflavin, niacin and ascorbic acid and rest are the carbohydrates which make up the dry matter of the bulb. Under such circumstances application of herbicides offer a suitable method for weed control by producing maximum sized bulbs and higher yield.

The conventional method of weed control (hoeing and manual weeding) is very labourious, expensive and insufficient Weed infestation is the important constraint in onion production, which causes reduction in bulb and seed yield to the tune of 40 to 80% (Channapagoudar and Biradar, 2007). Onion is slow growing, shallow rooted crop with narrow upright leaves and non-branching habit. Due to this type of growing habit, it cannot compete well with weeds. In addition to this, frequent irrigation and fertilizer application allows for successive flushes of weeds in onion.

Material and Methods
Total soluble solids (TSS %)
A drop of onion juice was used to determine the TSS with the help of "Erma" (0.32%) hand refractometer and the value was noted at room temperature.

Results and discussion

Total soluble solids (TSS %)

Table 1. Show the effect of different herbicides treatments on the total soluble solids content of onion bulb. Among all treatments, highest TSS (11.67 ºBrix) was recorded in weed free plots and lowest TSS (9 ºBrix) was recorded in weedy check plots.

The treatment T_4 (Oxyfluorfen @ 1 kg/ha (pre-emergence)) and T_5 (Quizalofop-ethyl @ 1 kg/ha (post-emergence)) were recorded significantly higher TSS (11.50 ºbrix) which was at par with all the treatment except T_1 (control weedy check), T_9 (Black polythene mulch) and T_{10} (Organic mulch with paddy straw @ 20 q/ha). Similar findings were reported by Chattopadhyay *et al.* (2016) [5], sankar *et al.* (2015) [4].

Table 1: Effect of different weed management practices on Total soluble solids (ºbrix) of onion

Treatment	Treatment detail	Total soluble solids (ºbrix)
T_1	Control (weedy check)	9.00
T_2	Weed free	11.67
T_3	Pendimethalin @ 1.75 kg/ha (pre-emergence)	11.17
T_4	Oxyfluorfen @ 1 kg/ha (pre-emergence)	11.50
T_5	Quizalofop-ethyl @ 1 kg/ha (post-emergence)	11.50
T_6	Pendimethalin´@ 1.750 kg/ha (pre emergence) + Quizalofop-ethyl @ 1 kg/ha (post-emergence)	10.17
T_7	Oxyfluorfen @ 1 kg/ha (pre-emergence) + Quizalofop-ethyl @ 1 kg/ha (post-emergence)	11.33
T_8	Two hand weeding at 25 and 45 DAT	11.33
T_9	Black polythene mulch	9.67
T_{10}	Organic mulch with paddy straw @ 20 q/ha	9.67
	SEm±	0.52
	CD (P=0.05)	1.53

References

1. Anonymous, 2014-15. www.nhrdf.com
2. Anonymous. Area, production and Productivity. Directorate Horticulture, Ministry of Agriculture, Government of Chhattisgarh, Raipur (C.G.), 2013.
3. Anonymous. Area and production of onion in India. Indian Horticulture Database, National Horticultural Board, Ministry of Agriculture, GOI, Gurgaon, Haryana, 2014a, P.164 (www.nhb.gov.in)
4. Sankar V, Thangasamy A, Lawande KE. Weed management studies in onion (*Allium cepa* L.) cv N 2-4-1 during rabi season. International Journal of Tropical Agriculture. 2015; 33(2):627-631.
5. Chattopadhyay N, Mahalanabish S, Hore JK, Maity TK. Effect of different herbicides on growth and yield of onion (*Allium cepa* L.). Journal of Crop and Weed. 2016; 12(1): 112-115.