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Abstract: Taro [*Colocasia esculenta* var. *antiquorum* (L.)Schott.] is one of the important tuberous vegetable of the world and known as "Great leaved Caladium" or "Elephant ear" in English, "Dasheen" in USA, "cocoyam" in West Africa. In India, taro is extensively grown in Kerala, Andhra Pradesh, Tamil Nadu, West Bengal, Bihar, Uttar Pradesh, Assam and Orissa. It is also popular in North eastern states of India and successfully grown throughout the region due to its adaptability to a wide range of soil and climatic conditions. Colocasia being kharif crop is liable to be highly infested with weeds which is extremely hazardous both in terms of crop health as well as productivity. It has been well established that the yield loss due to weeds is quite higher (60-70%). Even though taro is having much economic importance, but there is very little information available regarding the Integrated weed management practices for its maximum quality and quantity. An investigation to study the "Integrated weed management in Taro [*Colocasia esculenta* var. *antiquorum* (L.) Schott.]" was carried out in the experimental farm of Department of Horticulture, Ranchi Agriculture College, Birsa Agricultural University during kharif season of 2017 with an objective to identify the different weed flora, to evaluate the response of different herbicides and cultural methods of weed control, growth, yield and the attributing traits of taro and to determine the economics of different integrated weed control methods in taro. The treatments consisted of 13 different weed control methods, viz. Pre emergence herbicide Atrazine @ 1kg a.i. ha⁻¹ at 2 DAS (T1), Pre emergence herbicide Oxyflourfen @ 200g a.i. ha⁻¹ at 2DAS (T2), Post emergence herbicide Paraquat @ 0.5kg a.i. ha⁻¹ at 30 DAS (T3), Handweeding at 3 and 8 WAS (T4), Pre emergence herbicide Atrazine @ 1kg a.i. ha⁻¹ at 2DAS+ Handweeding at 12 WAS (T5), Pre emergence herbicide Oxyflourfen @ 200g a.i. ha⁻¹ at 2DAS+ Handweeding at 12 WAS (T6), Post emergence herbicide Paraquat @ 0.5kg a.i. ha⁻¹ at 30 DAS+ Handweeding at 12 WAS (T7), Sesbania @ 50kg ha⁻¹ broadcasted at the time of sowing and incorporated at 60 DAS (T8), Straw mulch @ 7 tonnes ha⁻¹ at the time of sowing (T9), Transparent plastic mulch @ 40kg ha⁻¹ at the time of sowing (T10), Black plastic mulch @ 40 kg ha⁻¹ at the time of sowing (T11), Weedfree check -Manual Handweeding at fortnightly interval (T12), Weedy check (T13) were laid out in Randomized Block Design with 3 replications. Results revealed that among all the categories, broad leaved weeds dominated the field followed by narrow leaved and sedges weeds. Weed density and dry weight were significantly reduced by different weed management methods. The lowest weed density (0.00 weed m⁻² at 45 DAS, 32.00 weeds m⁻² at 90 DAS and 117.33 weeds m⁻² at 135 DAS) and lowest weed dry matter (0.00 gm⁻² at 45 DAS, 13.72 gm⁻² at 90 DAS and 34.65 g m⁻² at 135 DAS) were recorded under (Black plastic mulch) T11. Maximum weed control efficiency (100.00 %, 98.08 % and 93.65 %) at 45, 90 and 135DAS was found in Black plastic mulch (T11). Minimum weed index 0.00 % was found in Black plastic mulch (T11). All weed management practices significantly improved the yield of tuber over weedy check. Maximum height of plant was recorded in Sesbania incorporated at 60 DAS (T8), followed by Black plastic mulch (T11). Maximum Girth of stem, Length and breadth of leaves, Number of leaves per plant, Leaf area index, Length and girth of mother corms and cormels, Number of mother corms and cormels per plant were recorded in Black plastic mulch (T11). Minimum incidence of Phytophthora leaf blight was recorded in Black plastic mulch (T11) followed by Weed free check (T12). Highest TSS (5.73°Bricks) was recorded under Weedy check (T13) in which no weeding was done while highest Ascorbic acid 13.06 mg 100g⁻¹ was recorded under Oxyflourfen (T6). The maximum tuber yield (16.62 t ha⁻¹) were recorded under Black plastic mulch (T11) followed by Weed free check (T12) 16.24 t ha⁻¹. Highest net return (Rs 196677.00 ha⁻¹), highest Marginal return per rupee (B:C ratio) [2.45] were recorded in Black plastic mulch (T11). However, the lowest Marginal return per rupee (B:C ratio) [1.68] was recorded in the Weedy check (T13). Highest weed population, weed dry matter and lowest tuber yield, net return and Marginal return per rupee (B:C ratio) were recorded under weedy check (T13). Thus, on the basis of results obtained in one year investigation (2017-18) it can be concluded that mulches, herbicides and hand weeding have potential of effective weed management in taro. After analysing the data it is concluded that the best treatments were black plastic mulch followed by Weed free check. Hence, black plastic mulch was found as the most promising treatment in order to get better vegetative growth higher productivity and profitability of taro owing to better weed control. However, as these results are based on one year data, it needs verification for at least one more year for making definite recommendation to the growers.

Description: INTEGRATED WEED MANAGEMENT IN TARO [*Colocasia esculenta* var. *antiquorum* (L.) Schott.]
