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EFFECT OF DATE AND METHOD OF PLANTING IN GROWTH AND YIELD OF CHINESE POTATO (*COLEUS ROTUNDIFOLIUS*)

Ch. Janani¹, G. Kranthi Rekha^{2*}, T.S.K.K. Kiran Patro¹, K. Umakrishna³ and V. Sekhar³

¹Department of Horticulture, Dr. YSRHU- College of Horticulture, Venkataramannagudem, West Godavari District-534 101, Andhra Pradesh, India

²Department of Horticulture, Dr. YSRHU- Regional Horticulture Research Station, Lam, Guntur District-522034, A.P., India.

³Department of Statistics, Dr. YSRHU- College of Horticulture, Venkataramannagudem, West Godavari District- 534101, Andhra Pradesh.

*Corresponding author E-mail : kranthihirslam@gmail.com

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ABSTRACT

A field experiment was carried out to investigate the effect of date and method of planting on growth and yield traits in Chinese potato (*Coleus rotundifolius*) during *kharif* and *Rabi* season of 2024-25 at Dr. YSRHU- College of Horticulture, Venkataramannagudem. The study included 16 treatment combinations each replicated twice in Factorial Randomized Block Design. The treatment combinations included four planting dates viz., D₁ (15th August), D₂ (15th September), D₃ (15th October) and D₄ (15th November) and four planting methods viz., P₁ (Vertical method of planting with leaves), P₂ (Vertical method of planting without leaves), P₃ (Coiled method of planting with leaves), P₄ (Coiled method of planting without leaves). The results revealed that date and method of planting and their interaction showed significant effect on growth and yield traits in Chinese potato. Highest plant height (63.90 cm), more number of leaves (858.90), plant spread (3802.82 cm²) and more number of branches per plant (17.00), more number of big, medium and small sized tubers per plant (10.60, 19.30 and 57.00, respectively), total number of tubers per plant (86.90), length of big, medium and small sized tubers (6.04 cm, 4.91 cm and 3.89 cm, respectively), diameter of big, medium and small sized tubers (5.34 cm, 3.99 cm and 1.98 cm, respectively), average tuber weight of big, medium and small sized tubers (96.33 g, 52.05 g and 24.12 g respectively), tuber yield per plant (1.18 kg), dry matter of tubers per plant (254.58 g) and harvest index (67.12 %) were recorded in D₃P₃ (Date of planting on 15th October + coiled method of planting with leaves).

Key words : Chinese potato, Growth, Yield, Date of planting, Method of planting.

Introduction

Chinese potato (*Coleus rotundifolius*) (2n=64) is one of the neglected and underutilized crops, exhibits superior performance under extreme soil and climatic conditions in Asia and Africa (Tadele, 2009). It is commonly known as Hausa potato, Sudan potato, Frafra potato, country potato and popularly known as poor man's potato because it fetches low price in market as compared to other tuber crops. Chinese potato is a staple food crop in several countries of Africa and Asia and it is native to tropical Africa (Aculey *et al.*, 2011). It is also widely grown in South-East Asia, especially in India, Sri Lanka, Thailand, Indonesia, and Malaysia. In India, it is cultivated in the southern states of Tamil Nadu, Kerala and

Karnataka on a small scale.

Coleus is a perennial, semi-succulent, aromatic, herbaceous plant. It is cultivated as an annual plant. It grows up to 60 cm tall under favourable conditions. The main edible part of *coleus* potato is tubers, formed in clusters of 3-7, either at the base of the stem or at the nodes below the soil surface. The tubers are small, dark brown, special aromatic flavour and delicious taste on cooking. The tubers are mostly eaten boiled, baked and fried. They are also used for treating burns, wounds, sores, insect bites, and allergies. Other uses include treatment for stomach pain, nausea, vomiting, diarrhea and throat infections. They are used as purgative, carminative and anthelmintic and they contain antioxidants that mediate

cancer cells. Due to its low glycemic index, it can also reduce the risk of diabetes and obesity. Leaves are used for treatment of dysentery, nasal congestion, sore throat, coughs and also have antifungal, anti-inflammatory properties (Mishra *et al.*, 2022).

Nutritional values highlight the potential of Chinese potato as a valuable food source, particularly in regions facing nutritional deficiencies or relying on alternative staple crops. The crop is also recognized for its adaptability to various soil types and environmental conditions and requiring minimal agricultural inputs. This makes it a promising candidate for sustainable agricultural practices, particularly in areas with limited resources or those experiencing food insecurity (Sethuraman *et al.*, 2020). Despite its potential, cultivation of Chinese potato primarily limited to certain regions. One of the major constraints to its wider adoption is the lack of awareness among farmers regarding its nutritional, medicinal and economic benefits. This is especially evident in Andhra Pradesh, where its cultivation is minimal. Additionally, very limited research has been conducted on Chinese potato and the package of practices for its cultivation and management has not yet been standardized, further hindering its expansion (Rani *et al.*, 2023). In the present context, a study was carried out to find out the optimum date and method of planting of Chinese potato in coastal Andhra Pradesh conditions.

Materials and Methods

The experiment was conducted at Dr. YSRHU - College of Horticulture, Venkataramannagudem during *kharif* and *Rabi* season of 2024-25. The experimental

design was Factorial Randomized Block Design consists of two factors *i.e.*, date of planting (D_1 - 15th August, D_2 - 15th September, D_3 - 15th October and D_4 - 15th November) and method of planting (P_1 - Vertical method of planting with leaves, P_2 - Vertical method of planting without leaves, P_3 - Coiled method of planting with leaves and P_4 - Coiled method of planting without leaves) with two replications and total sixteen treatment combinations (Table 1). Chinese potato stem cuttings were planted into experimental plots with a spacing of 45×30 cm and fertilizers were applied as per the recommendations. The other cultural practices like irrigation, weeding, earthing up and plant protection measures were carried out as and when required. Five plants from each treatment were taken at randomly to record plant height (cm), number of leaves, plant spread (cm²), number of branches per plant, number of tubers per plant, tuber length (cm), tuber diameter (cm), average tuber weight (g), tuber yield per plant (kg), dry matter of tubers per plant (g) and harvest index (%). Analysis of variance was carried out as per the procedure given by Panse and Sukhatme (1985).

Results and Discussion

The data presented in Tables 2, 3, 4, 5, 6 and 7 and results revealed that the growth and yield parameters of Chinese potato were significantly influenced by different date and method of planting and their interactions.

Among the planting dates, stem cuttings planted on 15th October (D) exhibited highest plant height (57.70 cm), number of leaves (594.63), plant spread (3064.65 cm²), number of branches per plant (12.71), number of big, medium and small sized tubers per plant (7.85, 16.23

Table 1 : Details of treatment combinations.

Treatment no.	Treatment Combinations
T ₁	D ₁ P ₁ - Date of planting on 15 th August + vertical planting with leaves
T ₂	D ₁ P ₂ - Date of planting on 15 th August + vertical planting without leaves
T ₃	D ₁ P ₃ - Date of planting on 15 th August + coiled planting with leaves
T ₄	D ₁ P ₄ - Date of planting on 15 th August + coiled planting without leaves
T ₅	D ₂ P ₁ - Date of planting on 15 th September + vertical planting with leaves
T ₆	D ₂ P ₂ - Date of planting on 15 th September + vertical planting without leaves
T ₇	D ₂ P ₃ - Date of planting on 15 th September + coiled planting with leaves
T ₈	D ₂ P ₄ - Date of planting on 15 th September + coiled planting without leaves
T ₉	D ₃ P ₁ - Date of planting on 15 th October + vertical planting with leaves
T ₁₀	D ₃ P ₂ - Date of planting on 15 th October + vertical planting without leaves
T ₁₁	D ₃ P ₃ - Date of planting on 15 th October + coiled planting with leaves
T ₁₂	D ₃ P ₄ - Date of planting on 15 th October + coiled planting without leaves
T ₁₃	D ₄ P ₁ - Date of planting on 15 th November + vertical planting with leaves
T ₁₄	D ₄ P ₂ - Date of planting on 15 th November + vertical planting without leaves
T ₁₅	D ₄ P ₃ - Date of planting on 15 th November + coiled planting with leaves
T ₁₆	D ₄ P ₄ - Date of planting on 15 th November + coiled planting without leaves

Table 2 : Effect of date and method of planting on plant height (cm), number of leaves, plant spread (cm²) and number of branches per plant of Chinese potato (*Coleus rotundifolius* L.).

DOP (D)	Plant height (cm)					Number of leaves					Plant spread (cm ²)					Number of branches per plant				
	Method of planting (P)					Method of planting (P)					Method of planting (P)					Method of planting (P)				
	P ₁	P ₂	P ₃	P ₄	Mean D	P ₁	P ₂	P ₃	P ₄	Mean D	P ₁	P ₂	P ₃	P ₄	Mean D	P ₁	P ₂	P ₃	P ₄	Mean D
D ₁	47.50	46.25	52.60	60.22	51.64	453.00	361.70	799.50	605.10	554.83	2472.58	2026.41	3230.61	2946.30	2668.97	10.60	9.90	14.70	12.10	11.83
D ₂	55.79	48.83	60.15	54.89	54.92	480.30	404.00	837.20	609.90	582.85	2840.42	2388.42	3648.22	3053.99	2982.76	11.20	10.15	15.45	12.15	12.24
D ₃	57.94	52.01	63.90	56.93	57.70	564.30	423.40	858.90	531.90	594.63	2934.54	2558.74	3802.82	2962.50	3064.65	11.70	10.95	17.00	11.20	12.71
D ₄	51.34	51.78	59.50	50.13	53.19	535.70	403.40	779.10	529.10	561.83	2904.15	2775.44	3380.88	3120.18	3045.16	12.60	10.90	14.10	10.90	12.13
Mean P	53.14	49.72	59.04	55.54		508.33	398.13	818.68	569.00		2787.92	2437.25	3515.63	3020.74		11.53	10.48	15.31	11.59	
Factors	SE m ±					C.D @ 5%					SE m ±					C.D @ 5%				
D	1.15					10.16					51.68					0.15				
P	1.15					10.16					51.68					0.15				
D × P	2.30					20.32					103.35					0.30				

D₁ - 15th August, D₂ - 15th September, D₃ - 15th October, D₄ - 15th November, P₁ - Vertical method of planting with leaves,
P₂ - Vertical method of planting without leaves, P₃ - Coiled method of planting with leaves, P₄ - Coiled method of planting without leaves.**Table 3 :** Effect of date and method of planting on number of big, medium and small sized tubers per plant, total number of tubers per plant of chinese potato (*Coleus rotundifolius* L.).

DOP (D)	Number of big sized tubers per plant (55 -100g)					Number medium sized tubers per plant (25- 55 g)					Number of small sized tubers per plant (10- 25 g)					Total number of tubers per plant				
	Method of planting (P)					Method of planting (P)					Method of planting (P)					Method of planting (P)				
	P ₁	P ₂	P ₃	P ₄	Mean D	P ₁	P ₂	P ₃	P ₄	Mean D	P ₁	P ₂	P ₃	P ₄	Mean D	P ₁	P ₂	P ₃	P ₄	Mean D
D ₁	6.40	5.20	8.60	7.60	6.95	13.50	10.70	17.20	15.40	14.20	46.10	38.90	52.50	46.60	46.03	66.00	54.80	78.30	69.60	67.18
D ₂	7.40	5.90	9.60	8.10	7.75	14.40	12.70	18.50	16.80	15.60	44.10	40.50	52.80	48.50	46.48	65.90	59.10	80.90	73.40	69.83
D ₃	7.10	5.30	10.60	8.40	7.85	16.10	14.70	19.30	14.80	16.23	53.50	36.90	57.00	47.85	48.81	76.70	56.90	86.90	71.05	72.89
D ₄	6.20	5.10	7.50	7.30	6.53	14.20	12.40	17.10	14.60	14.58	46.50	35.40	50.60	45.50	44.50	66.90	52.90	75.20	67.40	65.60
Mean P	6.78	5.38	9.08	7.85		14.55	12.63	18.03	15.40		47.55	37.93	53.23	47.11		68.88	55.93	80.33	70.36	
Factors	SE m ±					C.D @ 5%					SE m ±					C.D @ 5%				
D	0.13					0.28					0.74					0.81				
P	0.13					0.28					0.74					0.81				
D × P	0.26					0.56					1.48					1.62				

D₁ - 15th August, D₂ - 15th September, D₃ - 15th October, D₄ - 15th November, P₁ - Vertical method of planting with leaves, P₂ - Vertical method of planting without leaves, P₃ - Coiled method of planting with leaves, P₄ - Coiled method of planting without leaves.

Table 4 : Effect of date and method of planting on tuber length (cm) of big, medium and small sized tubers of chinese potato (*Coleus rotundifolius* L.).

Date of planting (D)	Length of big sized tubers(55 -100g)					Length of medium sized tubers(25- 55 g)					Length of small sized tubers (10- 25 g)				
	Method of planting (P)					Method of planting (P)					Method of planting (P)				
	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D
D ₁	5.22	4.96	5.45	5.30	5.23	4.41	4.02	4.48	4.08	4.25	3.10	3.01	3.80	3.44	3.34
D ₂	5.10	4.91	5.98	5.04	5.26	4.10	4.35	4.43	4.21	4.27	3.09	3.09	3.73	3.69	3.40
D ₃	5.53	5.17	6.04	5.35	5.52	4.12	4.34	4.91	4.22	4.40	3.39	3.27	3.89	3.41	3.49
D ₄	5.25	4.58	5.63	5.23	5.17	4.18	3.46	4.50	3.91	4.01	3.05	2.95	3.28	3.14	3.10
Mean P	5.28	4.91	5.77	5.23		4.20	4.04	4.58	4.11		3.16	3.08	3.67	3.42	
Factors	SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %		
D	0.05		0.16			0.05		0.14			0.04		0.13		
P	0.05		0.16			0.05		0.14			0.04		0.13		
D X P	0.11		0.32			0.10		0.29			0.08		0.25		

D₁ - 15th August, D₂ - 15th September, D₃ - 15th October, D₄ - 15th November, P₁ - Vertical method of planting with leaves, P₂ - Vertical method of planting without leaves, P₃ - Coiled method of planting with leaves, P₄ - Coiled method of planting without leaves.

Table 5 : Effect of date and method of planting on tuber diameter (cm) of big, medium and small sized tubers of chinese potato (*Coleus rotundifolius* L.).

Date of planting (D)	Diameter of big sized tubers(55 -100g)					Diameter of medium sized tubers(25- 55 g)					Diameter of small sized tubers(10- 25 g)				
	Method of planting (P)					Method of planting (P)					Method of planting (P)				
	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D
D ₁	4.98	4.13	5.18	4.82	4.78	3.55	3.49	3.75	3.41	3.55	1.62	1.51	1.74	1.55	1.60
D ₂	5.15	4.80	5.14	4.87	4.99	3.81	3.26	3.69	3.63	3.60	1.73	1.51	1.92	1.66	1.70
D ₃	5.29	4.95	5.34	5.07	5.16	3.72	3.31	3.99	3.70	3.68	1.57	1.52	1.98	1.77	1.71
D ₄	4.51	3.86	5.13	4.86	4.59	3.77	2.86	3.88	3.62	3.53	1.56	1.48	1.65	1.52	1.55
Mean P	4.98	4.44	5.20	4.91		3.71	3.23	3.82	3.59		1.62	1.50	1.82	1.63	
Factors	SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %		
D	0.06		0.17			0.03		0.10			0.02		0.07		
P	0.06		0.17			0.03		0.10			0.02		0.07		
D X P	0.11		0.33			0.07		0.20			0.05		0.15		

D₁ - 15th August, D₂ - 15th September, D₃ - 15th October, D₄ - 15th November, P₁ - Vertical method of planting with leaves, P₂ - Vertical method of planting without leaves, P₃ - Coiled method of planting with leaves, P₄ - Coiled method of planting without leaves.

and 48.81 respectively), total number of tubers per plant (72.89), length of big, medium and small sized tubers (5.52 cm, 4.40cm and 3.49 cm respectively), diameter of big, medium and small sized tubers (5.16 cm, 3.68 cm and 1.71 cm respectively), average tuber weight of big, medium and small sized tubers (82.10 g, 43.26 g and 20.20 g respectively), tuber yield per plant (0.86 kg), dry matter of tubers per plant (195.80 g) and harvest index (58.08 %) whereas the lowest plant height (51.64 cm), number of leaves (554.83), plant spread (2668.97 cm²), number of branches per plant (11.83), number of medium sized

tubers per plant (14.20) and dry matter of tubers per plant (172.46 g) were recorded in 15th August planting (D₁).

Minimum number of big, small sized tubers and total number of tubers per plant (6.53, 44.50 and 65.60 respectively), tuber length in big, medium and small sized tuber (5.17 cm, 4.01 cm, 3.10 cm respectively), diameter of big, medium and small sized tubers per plant (4.59 cm, 3.53 cm, 1.55 cm respectively), average tuber weight in big, medium and small sized tubers (71.70 g, 37.86 g and

17.20 g respectively), tuber yield per plant (0.66 kg) and harvest index (40.72 %) were recorded minimum in D₄ (15th November).

Superior performance in growth and yield of Chinese potato was observed in 15th October (D₃) planting might be due to the presence of favorable temperature and relative humidity, day length and rainfall distribution during this crop period leads to vigorous vegetative growth, which enhanced the overall photosynthetic surface area. Thus, increased assimilatory apparatus facilitate the greater production of photosynthates, which were subsequently translocated to a larger number of developing tubers. Similar findings were reported by Haile *et al.* (2015); Thongam *et al.* (2017) and Singh *et al.* (2020) where different planting dates had significant influence on growth and yield parameters of potato.

From the data, it was observed that, different methods of planting had significant influence on growth and yield traits in Chinese potato. Highest plant height (59.04 cm), number of leaves (818.68), plant spread (3515.63 cm²), number of branches per plant (15.31), number of big, medium and small sized tubers per plant (9.08, 18.03 and 53.23 respectively), total number of tubers per plant (80.33), length of big, medium and small sized tubers per plant (5.77 cm, 4.58 cm and 3.67 cm respectively), diameter of big, medium and small sized tubers per plant (5.20 cm, 3.82 cm and 1.82 cm respectively), average tuber weight of big, medium and small sized tubers (86.83 g, 48.61 g and 21.43 g respectively), tuber yield per plant (1.02 kg), dry matter of tubers per plant (232.35 g) and harvest index (54.35%) were recorded in coiled method of planting with leaves (P₃) while the lowest plant height (49.72 cm), number of leaves (398.13), plant spread (2437.25 cm²), number of branches per plant (10.48), number of big, medium and small sized tubers per plant (5.38, 12.63 and 37.93), total number of tubers per plant (55.93), length of big, medium and small sized tubers per plant (4.91 cm, 4.04 cm and 3.08 cm respectively), diameter of big, medium and small sized tubers per plant (4.44 cm, 3.23 cm and 1.50 cm respectively), average tuber weight of big, medium and small sized tubers (67.20 g, 32.35 g and 15.87 g respectively), tuber yield per plant (0.46 kg), dry matter of tubers per plant (120.00 g) and harvest index (41.72%) were recorded in vertical method of planting without leaves (P₂).

In coiling method of planting with leaves, there was a strong source–sink relationship and favorable root and shoot dynamics. In this method, the coiling of stem cuttings ensured the multiple nodes come in direct contact with the soil, resulted in the initiation of a higher number of

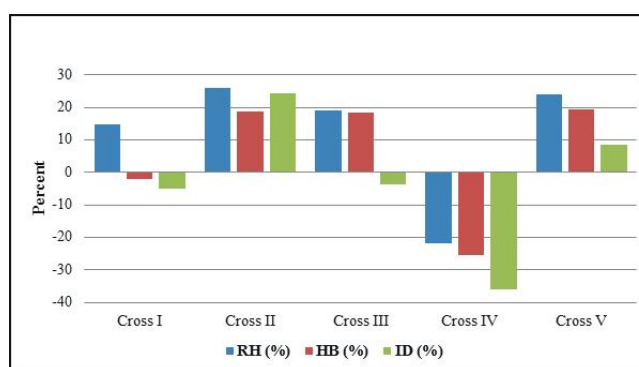


Fig. 1 : Graphical representation of percent relative heterosis (RH), heterobeltosis (BP) and inbreeding depression (ID) for number of pod per plant in all the five crosses.

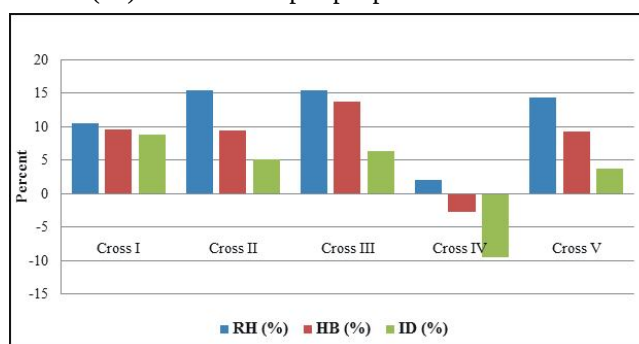


Fig. 2 : Graphical representation of percent relative heterosis (RH), heterobeltosis (BP) and inbreeding depression (ID) for green pod yield per plant in all the five crosses.

adventitious roots, which act as potential sites for tuber formation. The presence of leaves at planting further enhances early photosynthetic activity, canopy development and supplying assimilates during the initial establishment phase and supporting vigorous shoot emergence, which is crucial for sustaining tuber bulking. Similar results were reported by Polthanee *et al.* (2017) and Hauser *et al.* (2025) in cassava; Dlamini *et al.* (2021) and Mkhatshwa *et al.* (2021) in sweet potato.

The results revealed that there was a significant interaction effect between date and method of planting in Chinese potato. As per the observations recorded, it showed that stem cuttings planted on 15th October along with coiled method of planting with leaves (D₃P₃) exhibited maximum plant height (63.90 cm), number of leaves (858.90), plant spread (3802.82 cm²), number of branches per plant (17.00), number of big, medium and small sized tubers per plant (10.60, 19.30 and 57.00 respectively), total number of tubers per plant (86.90), length of big, medium and small sized tubers per plant (6.04 cm, 4.91 cm and 3.89 cm respectively), diameter of big, medium and small sized tubers per plant (5.34 cm, 3.99 cm and 1.98 cm respectively), average tuber weight of big, medium and small sized tubers (96.33 g, 52.05 g and 24.12 g respectively), tuber yield per plant (1.18 kg),

Table 6 : Effect of date and method of planting on average tuber weight (g) of big, medium and small sized tubers of Chinese potato (*Coleus rotundifolius* L.).

Date of planting (D)	Average tuber weight of big sized tubers (55 -100g)					Average tuber weight medium sized tubers (25- 55 g)					Average tuber weight small sized tubers (10- 25 g)				
	Method of planting (P)					Method of planting (P)					Method of planting (P)				
	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D
D ₁	74.17	66.52	86.04	74.80	75.38	38.76	31.79	49.93	42.25	40.68	18.13	14.56	21.20	18.41	18.08
D ₂	79.75	69.44	85.96	81.19	79.09	40.49	32.69	47.37	43.24	40.95	19.96	17.19	20.40	18.68	19.06
D ₃	76.66	71.45	96.33	83.97	82.10	41.47	35.55	52.05	43.97	43.26	19.22	17.67	24.12	19.77	20.20
D ₄	73.53	61.39	78.99	72.89	71.70	35.77	29.36	45.07	41.23	37.86	16.93	14.06	20.01	17.79	17.20
Mean P	76.03	67.20	86.83	78.21		39.12	32.35	48.61	42.67		18.56	15.87	21.43	18.66	
Factors	SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %		
D	0.69		2.08			0.34		1.03			0.14		0.42		
P	0.69		2.08			0.34		1.03			0.14		0.42		
D X P	1.38		4.17			0.68		2.06			0.28		0.83		

D₁ - 15th August, D₂ - 15th September, D₃ - 15th October, D₄ - 15th November, P₁ - Vertical method of planting with leaves, P₂ - Vertical method of planting without leaves, P₃ - Coiled method of planting with leaves, P₄ - Coiled method of planting without leaves.

Table 7 : Effect of date and method of planting on tuber yield per plant (kg), dry matter of tubers per plant (g), harvest index (%) of chinese potato (*Coleus rotundifolius* L.).

Date of planting (D)	Tuber yield per plant (kg)					Dry matter of tubers per plant (g)					Harvest index (%)				
	Method of planting (P)					Method of planting (P)					Method of planting (P)				
	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D	P ₁	P ₂	P ₃	P ₃	Mean D
D ₁	0.66	0.45	0.96	0.78	0.71	173.69	95.61	239.40	181.16	172.46	51.25	34.65	48.93	35.64	42.62
D ₂	0.77	0.46	0.99	0.88	0.77	187.51	110.73	222.05	188.83	177.28	54.23	42.61	58.53	44.49	49.96
D ₃	0.87	0.51	1.18	0.89	0.86	198.53	131.76	254.58	198.33	195.80	58.23	55.82	67.12	51.15	58.08
D ₄	0.68	0.41	0.97	0.58	0.66	197.09	141.89	213.36	191.82	186.04	43.34	33.81	42.81	42.93	40.72
Mean P	0.74	0.46	1.02	0.78		189.21	120.00	232.35	190.03		51.76	41.72	54.35	43.55	
Factors	SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %			SE m ±		C.D @ 5 %		
D	0.02		0.06			3.92		11.81			0.99		2.98		
P	0.02		0.06			3.92		11.81			0.99		2.98		
D X P	0.04		0.12			7.84		23.63			1.98		5.97		

D₁ - 15th August, D₂ - 15th September, D₃ - 15th October, D₄ - 15th November, P₁ - Vertical method of planting with leaves, P₂ - Vertical method of planting without leaves, P₃ - Coiled method of planting with leaves, P₄ - Coiled method of planting without leaves.

dry matter of tubers per plant (254.58 g) and harvest index (67.12%) whereas the minimum plant height (46.25 cm), number of leaves (361.70), plant spread (2026.41 cm²), number of branches per plant (9.90), number of medium sized tubers per plant (10.70) and dry matter of tubers per plant (95.61 g) were recorded in D₁P₂ (15th August + vertical method of planting without leaves). Minimum number of big and small sized tubers per plant (5.10 and 35.40), total number of tubers per plant (52.90), length of big, medium and small sized tubers (4.58 cm, 3.46 cm and 2.95 cm respectively), diameter of big,

medium and small sized tubers per plant (3.86 cm, 2.86 cm and 1.48 cm, respectively), average tuber weight of big, medium and small sized tubers (61.39 g, 29.36 g and 14.06 g, respectively), tuber yield per plant (0.41 kg), harvest index (33.81%) were recorded in the interaction effect of planting on 15th November combined with vertical method of planting without leaves (D₄P₂).

The result of the study stated that the 15th October planting combined with the coiled method with leaves showed a significant interaction effect because the crop experienced such as moderate temperature, optimal soil

moisture and favorable photoperiod which promoted better sprouting, faster canopy establishment and efficient photosynthate partitioning. The presence of leaves in the coiled method enhanced the early photosynthesis and assimilates translocation, leading to vigorous vegetative growth, higher tuber initiation, bulking ultimately leads to highest tuber yield. Similar results were reported by Kumar *et al.* (2000) in Chinese potato; Mohamed (2020) in Jerusalem artichoke; Hauser *et al.* (2025) in cassava.

From the present investigation, it can be concluded that date and method of planting and their interaction showed significant influence on growth and yield of Chinese potato. The results stated that planting on 15th October (D_3) and coiled method of planting with leaves (P_3) and their interaction D_3P_3 (15th October + coiled method of planting with leaves) showed maximum growth and yield attributes in Chinese potato.

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