

# Performance of Fodder Cowpea [*Vigna unguiculata* (L.)Walp.] as Influenced by Different Cultivation Methods

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**Abstract:** A field experiment was carried out during 2013 to 2016 in the field at Revgaon in the Jalna district and also in research field of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. The experiment was conducted to find out the performance of Cowpea [*Vigna unguiculata*(L.)Walp.] influenced by different cultivation method. The cultivation methods which are used for given experiment was Mulching, Shednet, Ridge and furrow, Shednet, Raised bed and control. The results were recorded at 30 days after sowing and the productivity was compared. The result shows that Mulching was the best method for cultivation of cowpea as fodder, and raised bed shows poor performance.

**Keywords:** Cow pea, fodder crops, cultivation method, productivity

## 1. Introduction

Cowpea [*Vigna unguiculata*(L.) Walp.] is an important and versatile crop cultivated in Maharashtra, however being a drought tolerant crop with better growth in warm temperature, Cowpea is popular in Marathwada region of Maharashtra. It flourishes well under the temperature range of 21- 35°C [Behera (2016)]. The crop is typically grown as dry land kharif yield crop and can also be grown up as pre-monsoon and late monsoon crop [Mehdi Dahmardeh (2012)]. It is moreover grown as second crop during Rabi subsequently after rice in southern parts of nation. Soils should be cultivated deeply enough to insure that no barrier to penetration of the soil by the taproot (such as a hardpan) exists. Cowpea may be adversely affected by soil crusting under certain soil and environmental conditions. The land must not be waterlogged but well drained [Behera (2016)].

## 2. Materials and Methods

The field experiment was conducted for evaluating the effect of different cultivation practices on the morphological and physiological aspects of fodder crop. The field experiment was conducted during period of season kharif 2014 to Rabi 2017 at the farm at Revgaon in district Jalna and also in the field of botanical garden of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad in period of Rabi 2017.

Mulching possessed a positive effect on growth of maize and soil physical condition (Khurshid et al., 2006). Mulching is one of the good administration practices among all further to recover water use of run through efficiency. Ridge and furrow cultivation method is an archaeological pattern of ridges and furrows created by a system of ploughing used in Europe during the Middle Ages, typical of the open field structure. A shade house is a structure enclosed by agro nets or any other woven material to allow required sunlight, moisture and air to pass through the gaps. It creates an appropriate micro climate conducive to the plant growth. It is also referred as shade net house or net house. In Raised

bed cultivation method for fodder, the bed planting systems, wheat, Jowar, Bajra, Maize or other crops are planted on the raised beds.

## 3. Results and Discussion

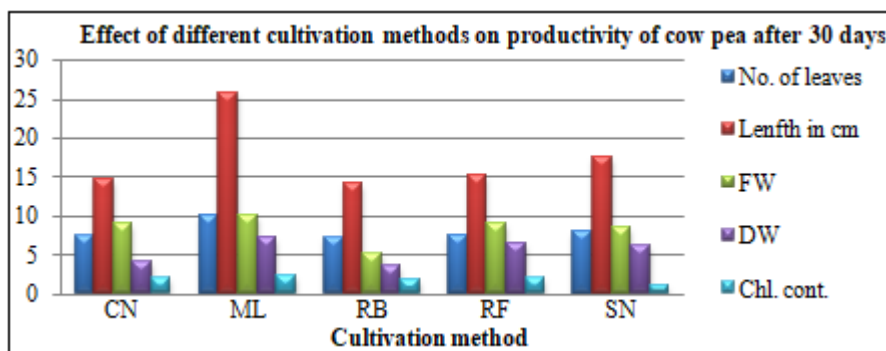
During the present studies efforts were made to grow Cow pea a different growth conditions. Results were recorded at 30 days. Recorded results after 30 days are as follows are summarized in table.

Days after sowing	Cultivation Methods	No. of leaves	Length in cm	FW (g)	DW (g)	Chl. cont. (mg/g)
30DAS	CN	7.4	14.7	9	4.1	1.99
	ML	10.01	25.8	10.17	7.34	2.38
	RB	7.2	14.09	5.14	3.56	1.83
	RF	7.5	15.2	9	6.51	2.03
	SN	8.1	17.67	8.6	6.12	1.1

CN-Control, ML-Mulching, SN- Shed Net, RF- Ridges and furrow, RB- Raised beds

According to the recorded observations in table it could be stated that, among all cultivation method functional leaves are highest in cultivation method mulching (10.01) followed by shed net (8.1) and ridge and furrow (7.5). Lowest number of functional leaves was recorded in the cultivation method raised bed as compared to control. Maximum height of plant recorded in case of mulching was (25.8cm) and the SN, RF, RB and Control show 17.67cm, 15.2cm, 14.09cm and 14.7cm respectively.

Among all methods of cultivation it was observed that, in shed net fresh and dry weight recorded was (8.6g) (6.12g) respectively, whereas in case of ridge and furrow it was (9.0g) (6.51g) respectively. In case of mulching fresh weight recorded was (10.17g) and dry weight was (7.34g) and it was (9.01g) and (4.1g) in control.



**Graph:** Effect of different cultivation on Cowpea at 30DAS

#### 4. Conclusion

The Mulching cultivation method consistently produced the highest number of leaves per plant. This was followed by Shednet, Ridge and Furrow cultivation method. The Raised bed cultivation method produced the smallest number of leaves per plant.

The Cowpea cultivated in the mulching cultivation method get moderate temperature during early phases and completed their life cycle taking longer period, and they had higher fresh weight and dry weight, and the plants planted in raised bed cultivation method had lower Fresh and dry weight.

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