

**Phase VI Report**

**On**

**Status Report on Crop Kc, Water Requirement of  
Summer Greengram and Summer Sesame**

**For**

**A PoCRA Project on;**

**“Determination of Crop Coefficients for Major Crops by  
Lysimetric Studies”**

**at**

**Dept. of Irrigation and Drainage Engineering,  
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola**

**Phase VI**  
**Status Report on Crop Kc, Water Requirement of Summer  
Greengram and Summer Sesame**

*“Determination of crop coefficients for major crops by Lysimetric studies”*

**Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.**

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**Title of the Project:** Determination of crop coefficients for major crops by Lysimetric studies” at Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

**Location:** Department of Irrigation and Drainage Engineering, Dr. Panjabrao Deshmukh Krishi Vidyapeeth Akola.

**Duration:** Three years.

**Total outlay:** Rs. 38.38 lakhs.

**Investigators:**

**Principal Investigator** : Dr. S.B. Wadkar, Professor and Head, Department of Irrigation and Drainage Engineering Dr. PDKV, Akola.

**Co-Principal Investigator** : Dr. A.N. Mankar, Assistant Professor, Department of Irrigation and Drainage Engineering Dr. PDKV, Akola.

Dr. M.M. Deshmukh, Associate Professor, Department of Irrigation and Drainage Engineering Dr. PDKV, Akola

**Coordinator for the project for three universities (MPKV, Rahuri; Dr PDKV, Akola and VNMKV, Parbhani)** : Dr. S.D. Gorantiwar, PI CAAST-CSAWM and Head, Deptt. of Agril. Engg., MPKV, Rahuri.

## **INTRODUCTION:**

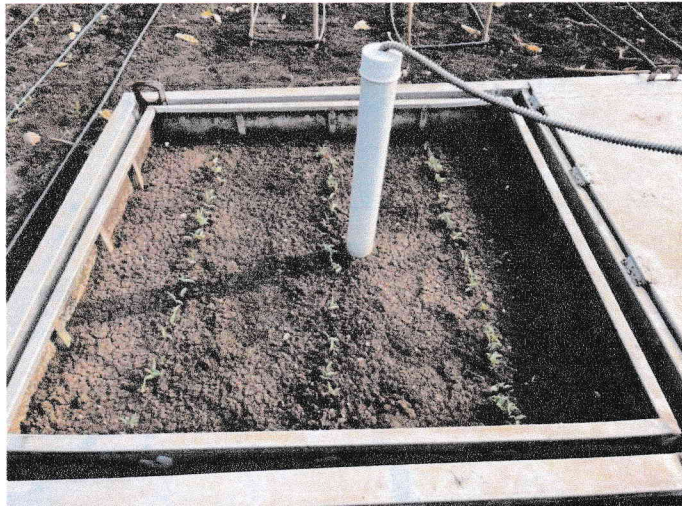
The Project is being executed at Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. As per schedule of reporting requirements, following are the details regarding the status of summer greengram and summer sesame.

## **DETAILS OF WORK:**

### **Cultivation of Summer Green Gram and Summer Sesame:**

As it was planned to cultivate summer greengram and summer sesame, the sowing of greengram (CV- Pusa Vaishakhi) was done on 3<sup>rd</sup> March 2023 and the sowing of summer sesame (CV- PDKV NT-11) was done on 13<sup>th</sup> February 2023. Following images shows the different field practices done during the entire growing period of summer greengram and summer sesame.

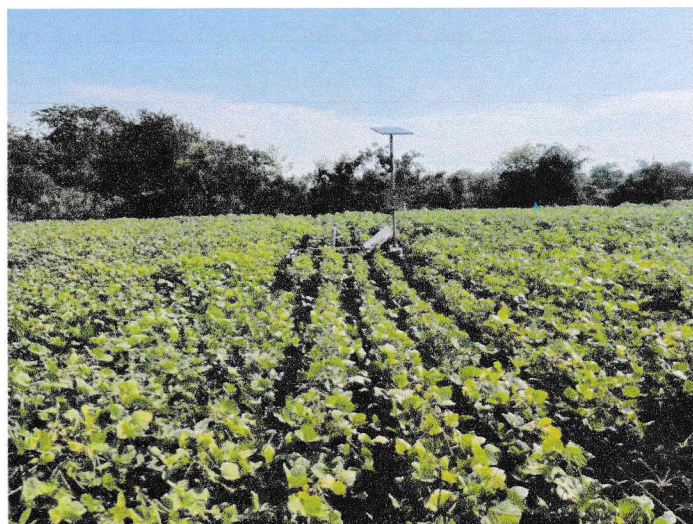
**Photographs taken during the cultivation of summer greengram**



**Germination of summer greengram**



**Summer greengram plants in lysimeter during initial growth stage**



**Summer greengram plants in lysimeter at mid-season growth stage**



**Harvesting of summer greengram inside and around the lysimeter**

**Photographs taken during the cultivation of summer sesame**



**Thinning and weeding of summer sesame after germination**



**Summer sesame in and around the lysimeter during initial growth stage**



**Summer sesame in and around the lysimeter during mid-season growth stage**



**Harvesting of summer sesame inside and around the lysimeter**



**Visit of Dr. Sharad Gadakh Sir, Vice Chancellor, Dr. PDKV Akola, Dr. Vilas Kharche Sir, Director of Research, Dr. PDKV Akola, Dr. S. S. Mane, Dean (Agriculture) Dr. PDKV Akola at lysimeter field**

### Plant Protection Measures

For healthy and disease free plants, the spraying of insecticides, herbicides and pesticides were done at different stages of crop according to its requirement. Following are the details of insecticides, fungicides and pesticides applied during the growth period for healthy growth of Sesame and Greengram.

**Table 1. Plant protection measures in summer greengram**

Sr. No.	Date of Application	Weedicide/ Insecticide/ Fungicide/ Pesticide	Quantity
1	04-03-2023	Pendimethelene 38.7 % CS	40 ml/10 lit. water
1	17-03-2023	Dimethoate 30 % EC	10 ml/ 10 lit. water
2	23-03-2023	Thiamethoxam 25 % WG	5 ml/ 10 lit. water
4	04-04-2023	Fipronil + Imidacloprid 17.8 % SL + Gibberellic acid 0.001%	5 ml + 5 ml + 10 ml/ 10 lit. water
5	13-04-2023	Propaquizafop 2.5 % + Imazethapyr 3.75 %	40 ml / 10 lit. water

**Table 2. Plant protection measures in summer sesame**

Sr. No.	Date of Application	Weedicide/ Insecticide/ Fungicide/ Pesticide	Quantity/10 lit. water
1	14-02-2023	Pendimethelene 38.7 % EC	40 ml/10 lit. water
2	17-03-2023	Dimethoate 30% EC	10 ml/ 10 lit. of water
3	04-04-2023	Azadiractine + Gibberellic Acid 0.001%	50 + 10 ml/ 10 lit. of water

## Plant Growth Observations

During the process of planting and growing the crops, there were several observations made regarding growth and yield of crops. Observations were made by selecting random plants from the lysimeter in different intervals i.e., 15 days after sowing, 30 days after sowing, 45 days after sowing and at harvest for summer greengram also at 30 days after sowing, 60 days after sowing, 90 days after sowing and at the time of harvest for summer sesame. The overall observations taken were height of crop, number of branches, number of leaves, number of flowers, number of capsules/pods and yield. For the yield observations of summer greengram and summer sesame, the yield from observation plants were collected and the average yield per hectare were determined. Following table illustrates an overall detail about the growth parameters and yield of summer greengram and summer sesame during the growing period.

**Table 3. Plant growth parameters and yield of summer greengram**

Parameters	15 DAS	30 DAS	45 DAS	At Harvest
Height (cm)	7.37	17.2	45.2	51.6
Branches	0	4.2	7.7	10.1
Leaves	4.7	13.5	31.7	36.5
Flowers	0	0	4.7	1.9
Pods	0	0	8.5	19.1
Average yield				<b>12.88 q/ha</b>

**Table 4. Plant growth parameters and yield of summer sesame**

Parameters	30 DAS	60 DAS	90 DAS	At Harvest
Height (cm)	7.78	78.6	97	107.1
Branches	0	4.5	6.2	4.4
Leaves	7.2	67.9	86.5	102.1
Flowers	0	7.8	2.7	2.3
Capsules	0	28.8	61.2	63.2
Average yield				<b>8.77 q/ha</b>



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