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## ICAR- CENTRAL INSTITUTE FOR COTTON RESEARCH

P. B No. 2, Shankar Nagar P.O., Nagpur- 440010

# COTTON CANOPY MANAGEMENT GUIDE

## Plant Growth Regulator (PGR) Sprays in High Density Planting System (HDPS) & Closer Planted Cotton – Decision Criteria

Ramkrushna G.I., M. V. Venugopala &amp; Y. G. Prasad



In HDPS planted cotton at 90 x 15 cm spacing (seed rate at 5-6 seed packets/acre), the plant population stands at 29,629 plants/acre. In closer planting at 90 x 30 cm spacing (~4 packets/acre), plant population stands at 14,814 plants/acre. Canopy management in HDPS and Closer spacing is required to prevent excess vegetative growth (which result in shading) and thus facilitate adequate sunlight penetration within plant canopy and to regulate plant height.

To curtail excessive vegetative growth and retain first formed bolls in HDPS and closer planting system, plant growth regulator (PGR) like **Mepiquat Chloride** is applied 2 to 3 times. The schedule for PGR sprays in rainfed cotton is given below:

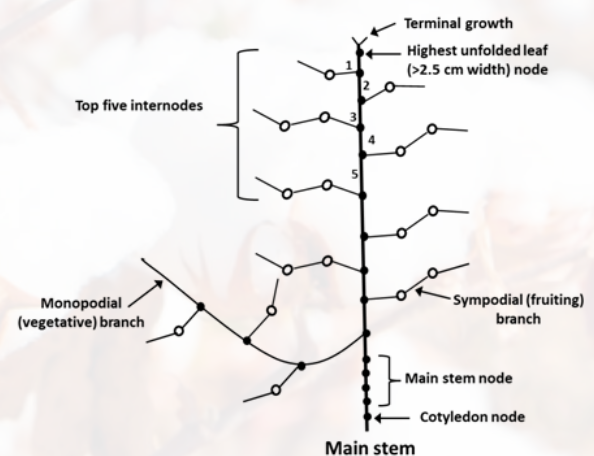
#Spray	Canopy Management schedule	Dosage of commercial formulation (Mepiquat Chloride 5% AS)*	
1 <sup>st</sup> spray	Crop age at 40-45 days, plant height of 40-45 cm, match-head square stage, no drought stress	1.0 ml/litre of water	200 ml/acre
2 <sup>nd</sup> spray**	15-20 days after first spray or 55 to 65 days crop	1.2 ml/litre of water	250 ml/acre
3 <sup>rd</sup> spray**	Need based. In case of excessive growth in heavy soils or very fertile soils or due to excess rains/soil moisture	1.2 ml/litre of water	250 ml/acre

#Spray fluid volume 200 litres / acre

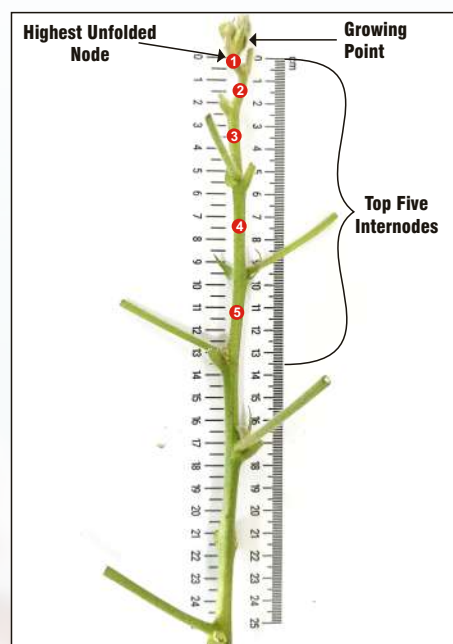
\*\*Need based-See criteria below

### DECISION CRITERIA WHETHER TO APPLY 2<sup>ND</sup> AND 3<sup>RD</sup> SPRAYS OF PGR OR NOT

#### A. Diagrammatic representation of cotton plant

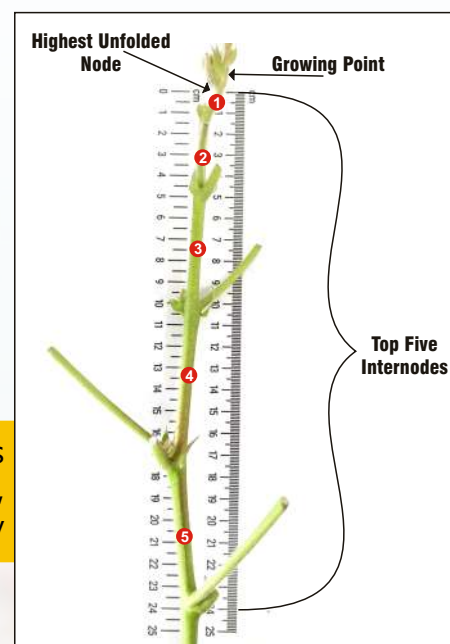


## B. Actual plant image assessment for spray / no spray decision



Length of the top five internodes is observed to be less than 20 cm, no need to spray PGR

Length of the top five internodes is observed to be more than 20 cm, undertake PGR spray



### Do's & Don'ts

- Before deciding any spray of PGRs, ensure sufficient moisture in soil with no forecast of dry spell in next 10 days and nutrients are also not limiting crop growth.
- 2<sup>nd</sup> and 3<sup>rd</sup> spray shall be taken when the length of the top five internodes is more than 20 cm [i.e. average length of top five internodes (ALT 5) is  $20 \div 5 = 4$ ].
- Observation for length of the top five internodes to be taken 15 days after first or second spray. If length of the top five internodes is less than 20 cm, repeat the observation after every week.
- When length of the top five internodes is more than 20 (or ALT 5 is more than 4), go for PGR spray.
- Miscounting nodes will cause an error in length of the top five internodes, hence care to be taken. Top most node is the one having an unfolded leaf of at least 2.5 cm width.
- Do not go for subsequent sprays of PGR, if there is loss of early formed bolls due to biotic or abiotic stresses.
- Spray volume of 200 litres per acre should be used.
- Stickers and surfactants can be mixed with mepiquat chloride and do not mix other agrochemicals (pesticides, foliar nutrients, biological preparations, etc.).
- Undertake PGR spray on a clear rain free day for best results.
- Do not feed or graze cotton foliage to animals up to 30 days of PGR spray
- Do not undertake any spray of mepiquat chloride if the crop is 90-100 days old.

### Impact of PGR sprays

#### The use of Mepiquat Chloride may result in one or more of the following:

Height reduction, compact plants, more open canopy, better boll retention, less boll rot and a darker green leaf colour.

**Authors :** Dr. Ramkrushna G.I., Dr. M. V. Venugopalan and Dr. Y. G. Prasad

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