

Managing Lodging Risk in Winter Wheat

Featuring the new
Canopy Assessment Tool (CAT)



Developed in collaboration with ADAS



visit www.pgrplus.basf.com


The Chemical Company

Introduction

www.pgrplus.basf.com

is BASF's new website tailored to managing lodging risk in cereals.

- In addition to detailed information about BASF plant growth regulators, the website also hosts a new innovative tool for the assessment of lodging risk in wheat.
- Using the CAT (Canopy Assessment Tool), you can quickly and very easily obtain a lodging risk assessment of your wheat crop and a simple, yet tailored PGR recommendation.
- The information provided is also important for estimating the fertiliser requirement of the crop when using methods such as the RB209 Fertiliser Guide and GrowHow's N-Calc System.
- CAT has been developed, trialled and calibrated by ADAS in order to provide an accurate lodging risk assessment and PGR programme according to the in-field risk.



Canopy Assessment Tool



‘So what is the theory behind the **CAT**?’

The size of the wheat canopy in the spring time is a critical indicator for decisions about nitrogen and plant growth regulators (PGRs).

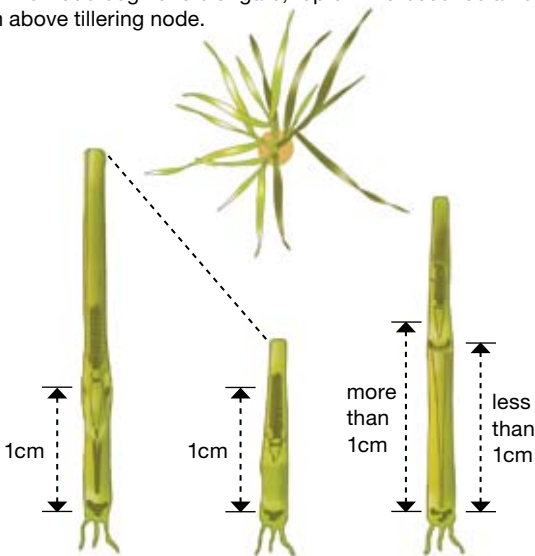
- Size of the wheat canopy is difficult to estimate but it can be measured by its Green Area Index (GAI); the amount of green tissue per m² of ground.
- The Canopy Assessment Tool (CAT) estimates the GAI of the wheat canopy from a digital photograph of the crop.
- At GS 30, it has been shown that each 0.5 unit increase in GAI above a GAI of 1.25 effectively reduces the variety Lodging Resistance Score, described in the HGCA Recommended List, by 1 point. At GS 31, the critical GAI above which lodging risk increases is 1.75.
- Higher yielding crops have a greater lodging risk as a result of heavier ears. It has been estimated that each tonne per hectare increase in yield above 9 t/ha, reduces the variety Lodging Resistance Score by 0.5 points.
- Knowing the GAI at growth stage 30 or 31, together with the Lodging Resistance Score of the variety and an estimate of the crop's yield potential, allows the lodging risk to be predicted and the subsequent requirement for a PGR or PGR programme.
- Each unit of GAI is equivalent to a crop N content of 30 kgN/ha. Knowledge of how much N a crop has taken up in the spring is required to estimate the N fertiliser requirement of crops.

Growth Stage Guide

How do I know when my crop is at GS 30 or GS 31?

Growth stage 30

The beginning of stem elongation: pseudostem and tillers erect. First internode begins to elongate, top of inflorescence at least 1 cm above tillering node.



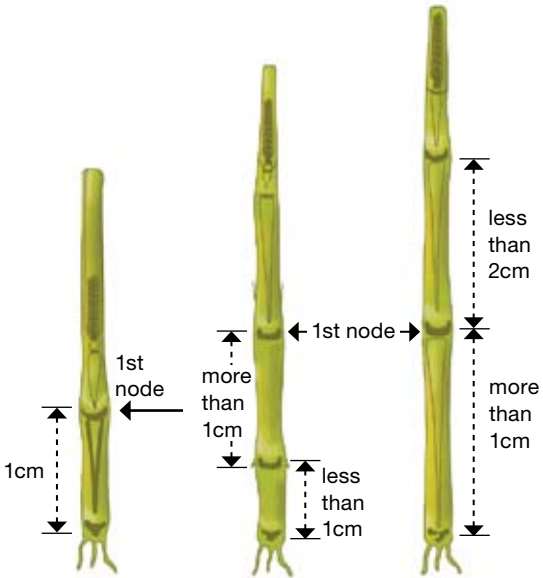
Distance between base of the plant and the top of the shoot apex on the main stem is 1cm or more, but the length of the 1st internode is less than 1cm.

Growth Stage Guide

Growth stage 31

First node at least 1 cm above tillering node.

First node detectable (GS-31)
(main shoots split)



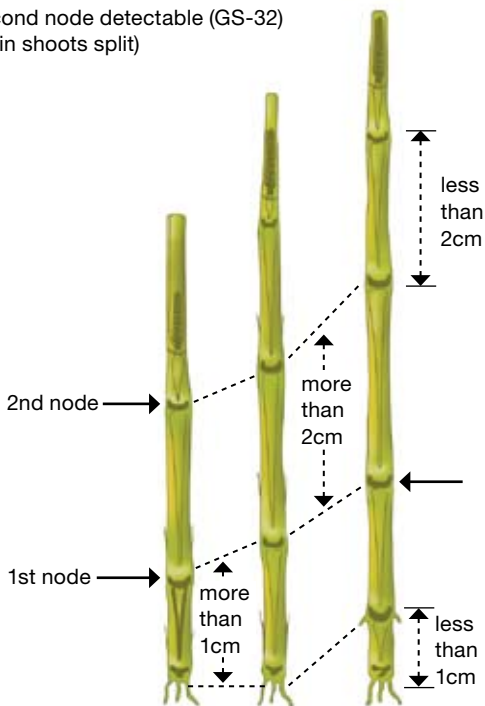
An internode of 1cm or more is present but the internode above is less than 2cm.

Growth Stage Guide

Growth stage 32

Node 2 at least 2 cm above node 1.

Second node detectable (GS-32)
(main shoots split)



Second and subsequent nodes are counted when the internode below them exceeds 2cm.

Advantages and benefits of using CAT

- Tailored PGR programmes
- Input justification/ICM approach
- Support tool to calculate crop nitrogen requirement
- Quick and easy to use

Guidance on using the Canopy Assessment Tool (CAT)



‘So how do you use the **CAT**?’

Step 1 – Take a quick CAT scan

From growth stage 30 up to and including GS 31, take a digital photo of the crop which is representative of the field.

Note: To gain the most accurate results from the tool, digital photographs should be taken directly above the crop. The area of crop photographed is not critical and a 1m x 1m is perfectly adequate. It is advisable to avoid taking photographs on sunny days as this may cause shadows.

Quality of the camera is less important. A camera phone is perfectly adequate.

Step 2 – Upload the photo

Go to www.pgrplus.basf.com and upload the digital photo to the CAT.



Step 3 – Wait for the advice

Enter the **wheat variety, predicted yield, date** and **geographical area**.

The **CAT** will show:

- The Green Area Index (GAI) of your crop.
- Resistance to lodging score of your crop (1 - 9 scale where 1 is high lodging risk).
- A BASF PGR programme tailored to that field risk at the time of taking the photograph.
- Risk colour: Red = high risk, Yellow = medium risk, Green = low risk.
- Calculated crop N content in kg/ha



Photographs of various GAI scores at crop Growth Stage 30



GAI 0.46



GAI 0.71

Photographs of various GAI scores at crop Growth Stage 30



GAI 0.91



GAI 1.44

Photographs of various GAI scores at crop Growth Stage 30



GAI 2.00



GAI 1.77

Photographs of various GAI scores at crop Growth Stage 31



GAI 2.04



GAI 3.19

Photographs of various GAI scores at crop Growth Stage 31



GAI 4.00



GAI 2.71

Photographs of various GAI scores at crop Growth Stage 31



GAI 1.41



BASF PGR programmes

Options by Timing

	Winter Wheat
T0 GS 25-30	Canopy* + 3C Chlormequat 720 0.3 – 0.4 l/ha + 1.0 l/ha
T1 GS 30-32	Canopy* + 3C Chlormequat 720 0.3 – 0.4 l/ha + 1.0 l/ha
	OR Canopy* + 3C Chlormequat 720 0.6 – 0.8 l/ha + 1.2 l/ha
T2 GS 32-39	Terpal 1.0 l/ha + non-ionic wetter
	OR Canopy* 0.6 – 0.8 l/ha

*Water conditioner to be used in hard water areas



The complete package
of PGR benefits



Delivers uniform stem height reduction



Increases stem strength by 24%
when applied at GS 31/32





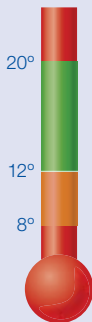
The complete package
of PGR benefits



Increases root dry matter by 27%;
improved resistance to root lodging
and absorption of water and nutrients

12°-20° for
prohexadione-
calcium

Optimum is 8°
for mepiquat
chloride



Active at a range of temperatures with
immediate onset of pgr activity

For more information on Canopy please visit
www.pgrplus.basf.com





Keep the **CAT** guide
with you all day...

Tear along the dotted line for a
wallet-sized information card.

Information coming from the use of the Canopy Assessment Tool (CAT) is to be used entirely at the user's risk and the BASF Group or ADAS Group gives no warranty in relation to the accuracy or completeness of any of the information contained. The BASF Group or ADAS Group shall have no liability to the user as a result of the possession or use of the information.

Disclaimer

Growth Stage Guide

How do I know when my crop is at GS 30 or GS 31?

Growth stage 30
The beginning of stem elongation: pseudostem and tillers erect. First internode begins to elongate, top of inflorescence and tillers at least 1 cm above tillering node.

Distance between base of the plant and the top of the shoot apex on the main stem is 1cm or more, but the length of the 1st internode is less than 2cm.

Growth Stage Guide

Growth stage 31
First node at least 1 cm above tillering node. (main shoots split)

An internode of 1cm or more is present but the internode above is less than 2cm.

Crop growth stage guide



Timing Flexibility

Lodging Resistance

pgrplus 
Advanced plant growth regulation

Physiological Benefits

Growth Management

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Canopy is a registered trademark of BASF
Canopy contains prohexadione-calcium + mepiquat chloride
Always read the label. Use pesticides safely.

For further details visit:
www.pgrplus.basf.com

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Taking the photo: The photo should be representative of the field.
Take the photo directly above the crop. Area of the crop photographed is not critical and a 1 m x 1 m is perfectly adequate. It is advised to avoid taking photographs on sunny days as this may cause shadows.

- Take a digital photo of your crop (GS 30/31)
- Upload your photo via www.pgrplus.basf.com
- Enter date, geographical area, crop growth stage, predicted yield and variety.

To obtain an assessment of the resistance to lodging score of your wheat crop and a tailored PGR programme:

Canopy Assessment Tool (CAT)

