Managing Lodging Risk in Winter Wheat

Featuring the new Canopy Assessment Tool (CAT)

Developed in collaboration with ADAS

visit www.pgrplus.basf.com
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.
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.
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 31

First node at least 1 cm above tillering node.

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

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

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<th>Timing</th>
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| **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
Increases root dry matter by 27%; improved resistance to root lodging and absorption of water and nutrients

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

12°-20° for prohexadione-calcium

Optimum is 8° for mepiquat chloride

For more information on Canopy please visit

www.pgrplus.basf.com
Disclaimer

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.

Crop growth stage guide

**Growth Stage Guide**

**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.**

**Crop 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.

**Growth stage 31**

First node at least 1 cm above tillering node.

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

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

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

Timing 
Flexibility 

Lodging 
Resistance 

pgrplus 
Advanced plant growth regulation 

Physiological 
Benefits 

Growth 
Management 

Canopy Assessment Tool (CAT) 

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

■ 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. 
■ Take the photo directly above the crop. Area of the crop photographed is not critical. 

Sunny days as this may cause shadows. 

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