

# Conserving Whole Crop Cereal Silage

**Fact Sheet 3**

Whole crop cereals can be ensiled at 2 stages of growth:-

1. Flag leaf – Boot stage (Lower yield, generally higher ME & CP)
2. Late milk – Soft dough stage (Higher yield, variable ME, lower CP)

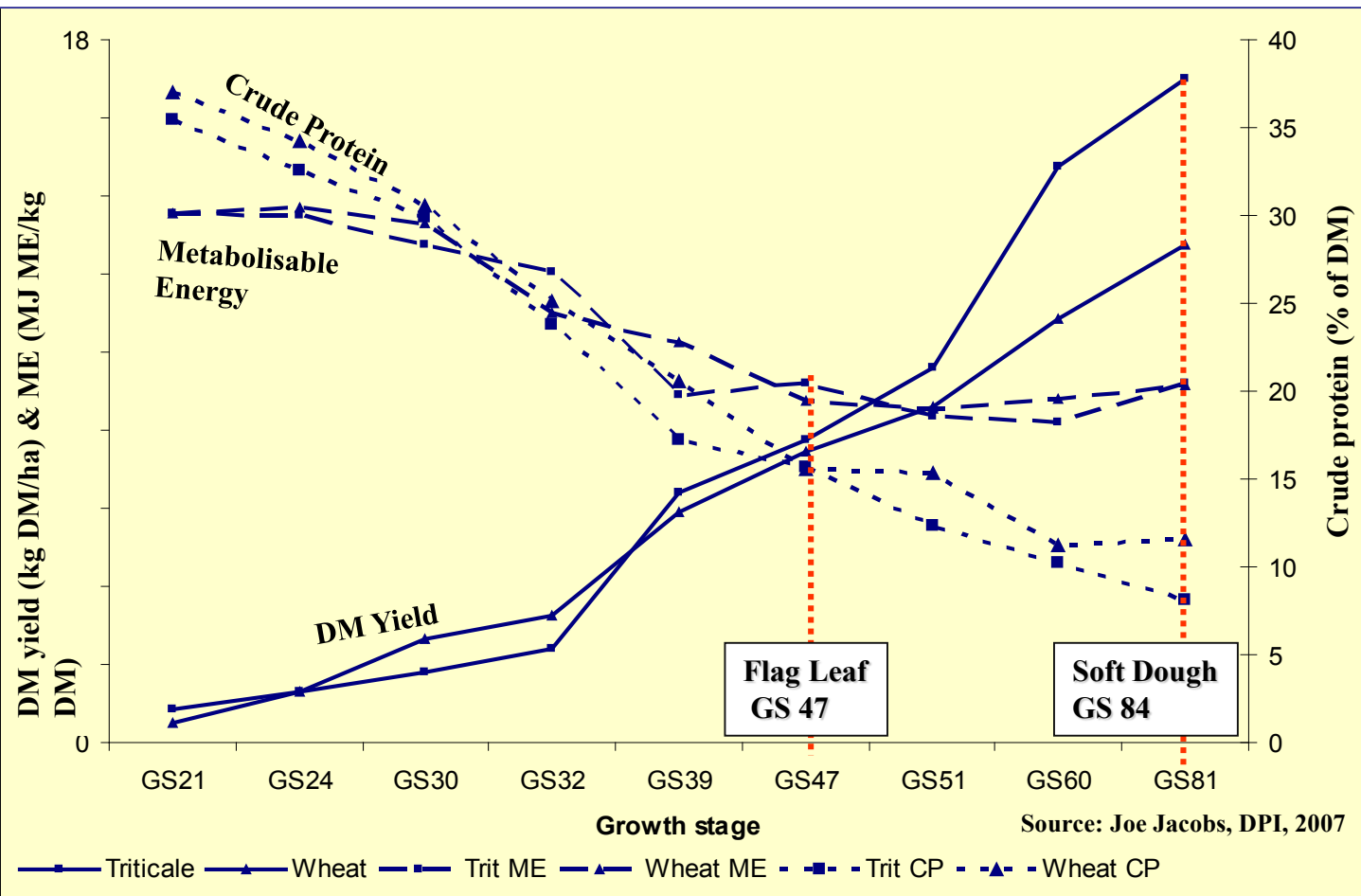
**AVOID CUTTING AT CLEAR LIQUID STAGE** (Often low palatability)

*Table 1: Target DM content and stage of growth for ensiling cereals*

Species	Flag leaf - Boot stage		Late milk - Soft dough stage	
	Stack/Pit <sup>1</sup>	Baled <sup>2</sup>	Stack/Pit <sup>1a</sup>	Baled <sup>2</sup>
Oats & Ryecorn	33 - 40	38 - 50	NR	NR
Barley, Wheat & Triticale	33 - 40	38 - 50	36 - 42	36 - 42 <sup>3</sup>

NR – Not recommended, <sup>1</sup> Ideally, should be precision chopped, <sup>1a</sup> Must be precision chopped, <sup>2</sup> Preferably baled with chopper baler, <sup>3</sup> Lower bale DM recommended to ensure greater compaction

*Figure 1: Effect of Growth Stage on Yield & Nutritive Value of Crackerjack triticale & Wedgetail winter wheat*



Further information: 1: DEPI Agnotes (Google *Forage Cereals*)

# 1. Flag leaf – Boot stage: Lower yield, higher ME & CP

(Fig. 1 - 6)

- Must wilt to target dry matter content! (See Table 1)
- Cut at ~10 cm height
- Use tedder immediately after mowing. Avoid tynes picking up soil & manure
- OR use mower-conditioner (Flailed types are best). Leaf wide, fluffy windrows
- **Ideally harvest with Precision chopper**
- **Loader wagon (fine chop) or baler (preferably chopper) are suitable at this growth stage**
  - Harvest at lower end of DM range to aid compaction
- Difficult to wilt at this stage of growth (early in season, high yields)
- **Silage additives highly recommended, essential if not wilted enough!**
  - Use traditional or “normal” type additives that enhance fermentation
- Seal stack immediately after harvest. Bales: wrap (4 – 6 layers) at storage site within hours of baling



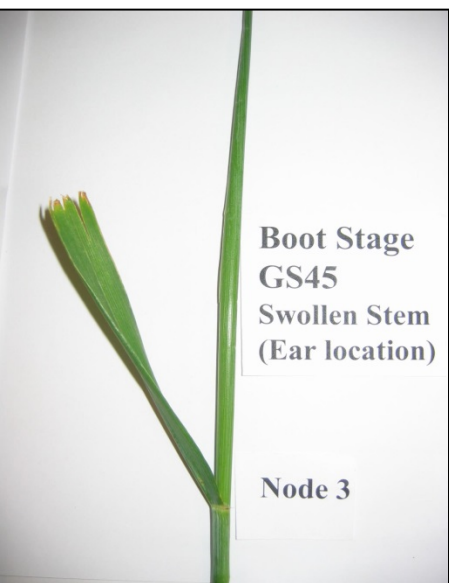
1. Oats: Early boot stage



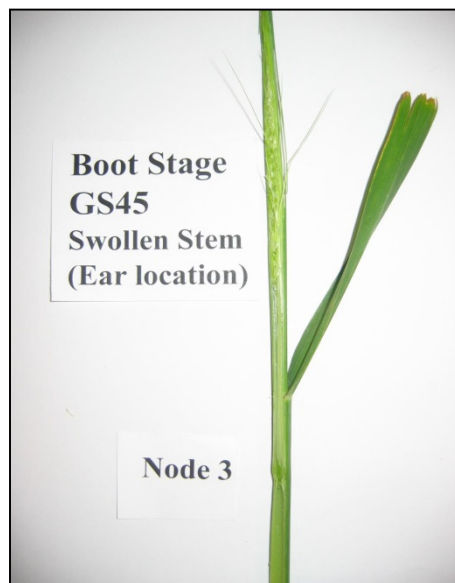
2. Wheat: Boot stage



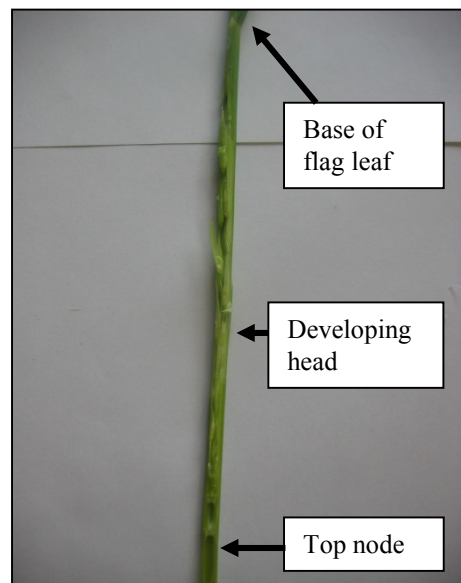
3. Early stages of heading



4. Triticale: Boot stage



5. Triticale: Dissected boot



6. Cereal: Dissected early boot

## 2. Late milk - Soft dough stage: Higher yield, variable ME, lower CP (Fig. 7 - 9)

- Can direct cut (at 10 cm height) as standing crop! (See Table 1)
- **Preferably use precision chop forage harvester with direct cutting front**
- **Can use precision chopper with pick-up front but.....**
  - mow only, leave swathe wide and avoid raking to minimise leaf/grain loss
- **Use Aerobic Spoilage Inhibitor-type silage additives**
  - Specific Inoculants (*Lactobacillus buchneri* 40788)
  - Normal inoculants with *L. buchneri* in mix
  - Other appropriate additives, egs. buffered acids, Sulphur + Amylase, etc.
- **Use Loader wagons at own risk!**
  - Chop length often too long, impossible to compact well
  - If used, apply aerobic spoilage inhibitors (see above) to control aerobic spoilage
- **Use balers at own risk!**
  - High DM (& Quality) losses due to grain/leaf losses at baling
  - If storing as round bales, use traditional/"normal" silage additives to assist fermentation
  - If storing as large square bales under sheets, use aerobic spoilage inhibitor
  - Vermin must be controlled (they "sense" the grain & will chew through plastic to get at it!)



7. Forage Triticale: Side view of crop  
Late milk – Early soft dough



8. Forage Triticale: Crop heads  
Late milk – Early soft dough



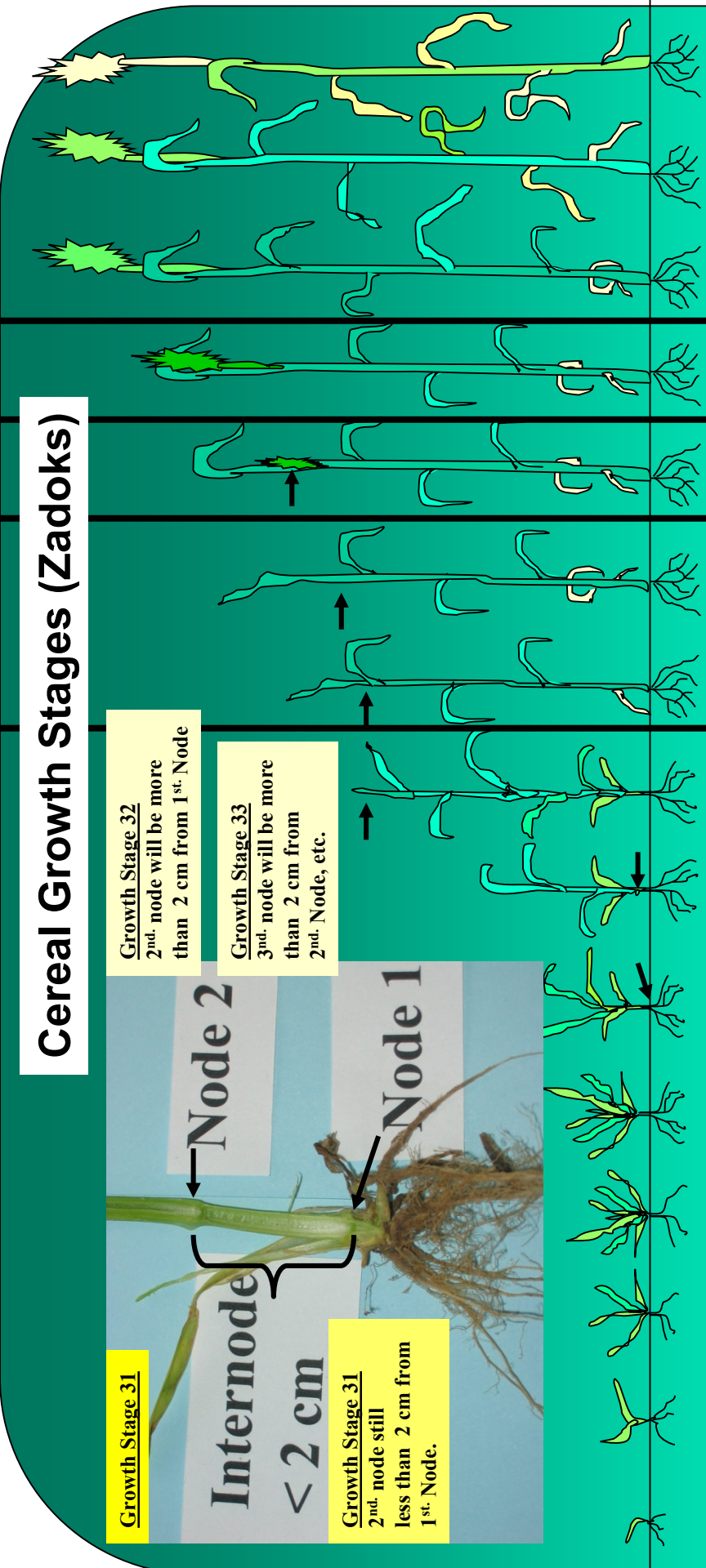
9. Forage Triticale: Squeezed  
grain showing early soft dough

# Cereal Growth Stages (Zadoks)



**Growth Stage 32**  
2<sup>nd</sup>. node will be more than 2 cm from 1<sup>st</sup>. Node

**Growth Stage 33**  
3<sup>rd</sup>. node will be more than 2 cm from 2<sup>nd</sup>. Node, etc.



0-11	12	21	22-29	30	31	32	37	39	45	51-59	61-69	70-79	81-89	91-99
Dry seed to first leaf emerged	2 leaves emerged	Tillering 1 main stem + 1 tiller	Tillering 1 main stem + 2-9 fillers	Stem Elongation beginning Leaf sheath becoming erect	Stem Elongation First node visible at stem base	Stem elongation Second node visible	Flag leaf just visible (Last leaf before ear emergence begins)	Flag leaf ligule just visible	Booting (Ear swollen in stem just under Flag leaf)	Heading i.e. ear emerging	Anthesis i.e. flowering	Clear liquid - Milk Stages (early, mid, late)	Dough Stages (early, soft, hard)	Ripening stage

## Vegetative Stages

## Heading/flowering

## Grain Formation Stages