



Harvest

Key Points:

- ▶ Planning is key; your harvesting programme should be developed in conjunction with your harvesting contractor, haulier and British Sugar Contract Manager
- ▶ Operate a 'just in time' harvesting and delivery approach for as long as possible
- ▶ When selecting which field to harvest first consider: soil type, field access and crop potential, to balance the benefits of early lifting whilst optimising yield performance
- ▶ Handle beet gently to prevent bruising and sugar loss
- ▶ Crop growth can increase yield by up to 40% from September to December

Operate a 'just in time' harvesting and delivery approach for as long as possible. This will ensure that stocks on farm are kept to a minimum, allowing maximum growth and minimising sugar losses after harvest.

Crops with the poorest yield potential should be harvested first; leave the better crops for later lifting.

Handle beet gently to prevent bruising and sugar loss. Bruised beet will respire rapidly.

Foliar diseases should be controlled to maintain a healthy leaf canopy and benefit from late-season growth.

Harvester operators should be fully trained and familiar with equipment. Maintenance is critical and harvesters should be fully serviced and any worn parts renewed where necessary.

Carry out regular assessments during harvester operations.

Crowning Losses

Over-crowning causes the highest level of yield losses, with approximately 1t/ha lost for every 5% of beet over-crowned.

UNDER-CROWNED



Petiole > 2cm

Target < 5%

OPTIMAL CROWNING



Petiole < 2cm | Defoliated

Target < 90%

OVER-CROWNED



Crown material removed

Target < 5%

Assessing root damage levels for yield loss

Measure the diameter of root damage in at least 20 representative roots, ideally 100 roots per sample		
Root breakage diameter (cm)	For every 10% of roots in each Sample	Yield loss t/ha
2-4	10%	0.5
4-6	10%	1.0
6-8	10%	2.0
8-10	10%	3.0

Remember, as well as the physical loss of yield, root damage will also accelerate the rate of sugar loss in storage. Trials have shown that in cases of severe root damage, this maybe 3X greater than in undamaged roots, especially when temperature are warmer. Make sure damage levels are low in crops destined for longer-term storage.



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Harvester Set-up: DRY SOIL CONDITIONS

Type of loss/damage	Suggested setting changes
Whole root losses	<ul style="list-style-type: none">• Set lifting mechanism deeper• Decrease forward speed• Check condition of shares - if worn, replace or repair if possible
Root tails broken off at lifting	<ul style="list-style-type: none">• Reduce forward speed
Root damage - chipping, breakage and cracking in the cleaning mechanism	<ul style="list-style-type: none">• Set lifting mechanism deeper• Fit turbine gate plates• Reduce turbine speed• Fit ringed turbines and/or more helper tines• Consider increasing or decreasing forward speed

Harvester Set-up: WET SOIL CONDITIONS

Type of loss/damage	Suggested setting changes
Whole root losses	<ul style="list-style-type: none">• Increase or decrease forward speed• Set lifting mechanisms deeper• Replace discs with shares or close discs
Root tails broken off at lifting	<ul style="list-style-type: none">• Adjust depth of lifting mechanism - raise/lower
Root damage - chipping, breakage and cracking in the cleaning mechanism	<ul style="list-style-type: none">• Reduce turbine speed• Increase forward speed• Check lifting accuracy
Excessive soil adhering to harvested roots	<ul style="list-style-type: none">• Increase turbine speed• Remove gate plates• Fit pigtines instead of railed gates• Raise lifting mechanism• Increase turbine gate gaps



Harvester Set-up: CROP CONDITIONS

Type of loss/damage	Suggested setting changes
Small beet	<ul style="list-style-type: none"> • Fit gate plates • Close turbine finger wheel gaps • Close oppel wheel or shear gap if beet are left in-field. 6kg of lost root equates to 1t/ha of lost yield
Gappy beet	<ul style="list-style-type: none"> • Open discs and move further from skids • Reduce scalper arm pressure • Increase topper height to allow for larger beet
High weed infestation	<ul style="list-style-type: none"> • Increase gap between turbine and gates • Increase angle of roller bed • Replace flails on topper • Ensure topper knives are sharp, if blunt, sharpen or replace • Side discharge tops and green material

In-field storage considerations

The main risk to in-field storage is frost. The chart below shows the level of root damage that might be expected for different levels of frost.

Temp °C	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14	-15
Days															
1	Green	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Red
2	Green	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Red	Red	Red	Red	Red	Red
3	Green	Green	Green	Green	Yellow	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Red
4	Green	Green	Green	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
5	Green	Green	Green	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
6	Green	Green	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
7	Green	Green	Yellow	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red

■ No damage
 ■ Crown and minor root damage
 ■ Extensive root damage