

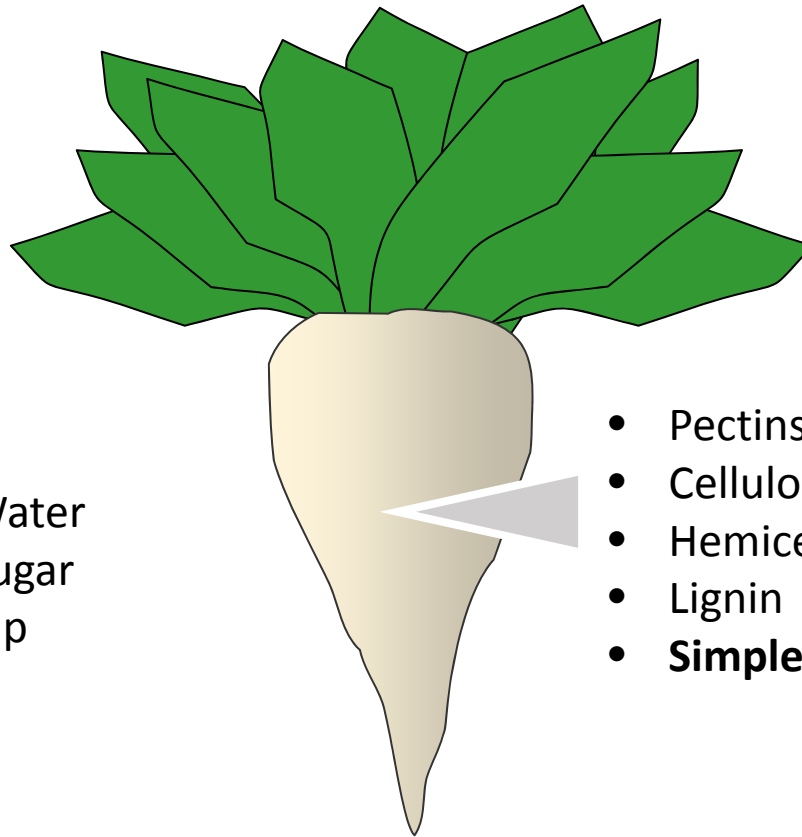


Feed Beets

By

Betaseed, Inc.

What is a Feed Beet from Betaseed®



ROOTS

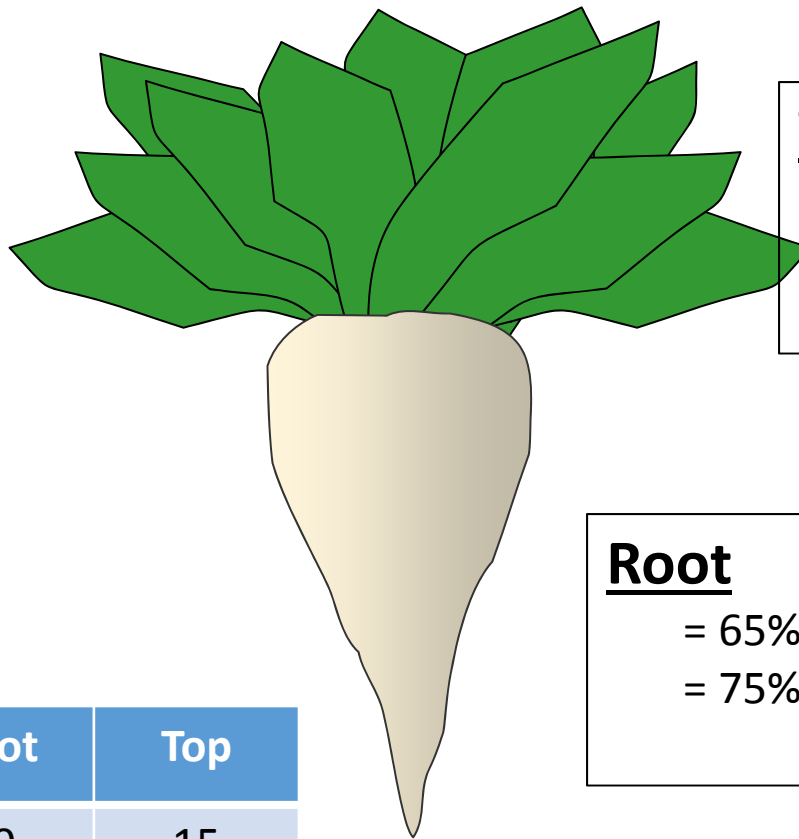
- 75-80% Water
- 15-18% Sugar
- 5-10% Pulp

- Pectins
- Cellulose
- Hemicellulose
- Lignin
- **Simple Sugars**

Sugars are slowly released during digestion

- **Sugar is stored in the root cells**

What is a Feed Beet from Betaseed®



Top

= 35% weight fresh basis
= 25% weight DM basis

Root

= 65% weight fresh basis
= 75% weight DM basis

Tons/Ac	Root	Top
Fresh basis	30	15
DM basis	7	2



Why Grow Beets?

	Yield, T/Acre	Dry matter, %	T DM/Acre
Corn ¹	4.70	88	4.13
Barley ²	1.63	88	1.44
Sorghum ³	2.13	88	1.88
Sugar beets ⁴	30.8	23	7.08

Yield Based on US Census report for crop year 2015 (USDA)

¹168 bushels/ acre at 56 lb/bushel

²68.2 bushels/acre at 48 lbs/bushel

³76.4 bushels/acre at 56 lb/bushel

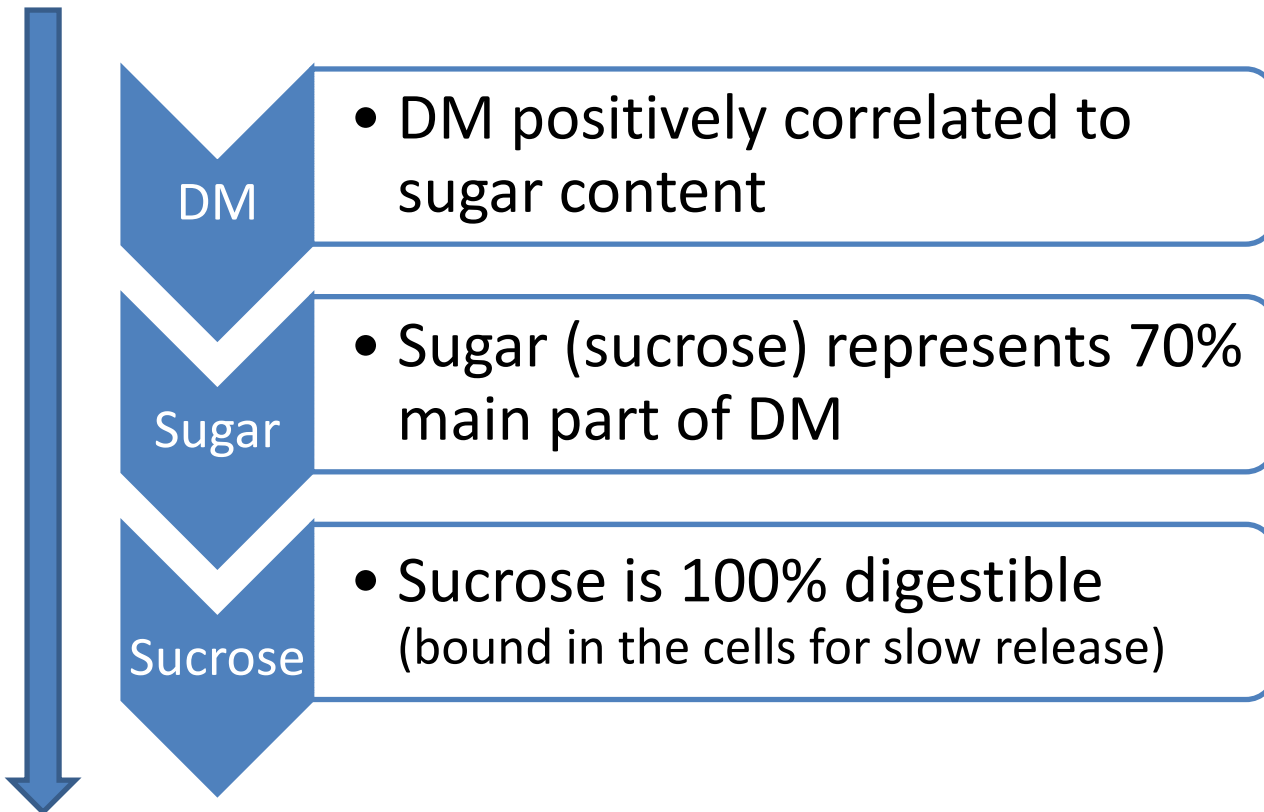
⁴30.8 tons/acre

Cost of production/acre may be lower (?)

Nutritional



Digestibility » approx. 90%



Organic Matter digestibility » approx. 90%

- This is highest share of natural crops & feedstuffs

What they bring to my Operation



Feed

- Nutritional Value
- Economics
- Palatability



Item	Feedbeet ¹	Maize silage ²	Wheat grain ²
Dry matter	217	334	864
Crude protein	43	80	109
Usable protein	151	137	149
Metabolizable energy (MJ/kg DM)	12.8	11.3	11.8
Net energy lactation (MJ/kg DM)	8.2	6.9	7.5

Why - Feed Beets from Betaseed®



Components	Average As Fed	Average Dry Matter
% Dry Matter	0.00	22.24
% Moisture	0.00	77.76
% Neutral Detergent Fiber - NDF	2.55	11.45
% Acid Detergent Fiber - ADF	1.65	7.27
% Lignin	0.35	1.72
Lignin % NDF	10.78	10.78
% Crude Protein	1.26	5.99
% Crude Fat	0.10	0.42
% Starch	0.11	0.51
% Sugar	13.20	56.91
% Ash	1.46	6.48
% Calcium	0.03	0.14
% Phosphorus	0.03	0.15
% Magnesium	0.04	0.20
% Potassium	0.33	1.52
% Sodium	0.05	0.25
% Sulfur	0.01	0.06
% Chloride	0.05	0.21
PPM Copper	1.67	6.33
PPM Iron	364.00	1362.00
PPM Manganese	8.80	33.00
PPM Zinc	4.50	17.00
% TDN	8.87	77.95
% NFC	8.47	74.36
NEL, Mcal/LB	0.15	0.80
NEM, Mcal/LB	0.13	0.79
NEG, Mcal/LB	0.12	0.65
NDFd as % of NDF-24 HR	2.03	41.80
NDFd as % of NDF-30 HR	2.37	65.93
NDFd as % of NDF-48 HR	3.94	88.30

- Highly Digestible Fiber
- Efficient rumination via slow-released sugars that are tied into the fiber
- “Cows love ‘em” so they’re easy to feed



GROWING THE CROP

Fertility Management



- **Nitrogen:**
 - 160 lb/a in top 4 feet (100 lb/a in top 2 feet)
 - Increasing Nitrogen = Increasing Tons/a
 - Rule of thumb = 7–8 lbs/acre available per ton of desired beet yield
- **Phosphorus:**
 - 80–100 lbs/a of available phosphate
- **Potassium:**
 - 120-150 lbs/a of available potassium
- **MicroNutrients:**
 - Zinc, Sulfur, Manganese in small amounts (Usually not necessary)

Insect Management



- Common insects include:
 - Cutworms, wireworms, root maggots, springtails, white grubs, root aphids, nematodes, leafhoppers, black flies, army worms
- PonchoBeta[®] effective seed treatment
- Counter[®] 15G, Admire[®], or Lorsban[®] - planting time insecticide

Disease Management



- Root Diseases Include:
 - Aphanomyces, Rhizoctonia, Erwinia, Pythium, Sclerotia
 - Control Measures:
 - Conventional Breeding
 - Fungicides
- Leaf Diseases
 - Powdery Mildew
 - Sulfur, Headline, Eminent, Topsin, others
 - Cercospora Leafspot
 - Headline, Eminent, Quadris, Proline, Supertin, others

Agronomy Information



Common Herbicides and there Sugarbeet Rotation Restrictions-

<u>Trade Name</u>	<u>Common Name</u>	<u>Length</u>	<u>Notes</u>
Atrazine:	(atrazine):	2 CS	
Armezon/Impact	(topramezone):	18 months	
Banvel	(Dicamba)	NCS	
Balance Flex:	(isoxaflutole):	18 months	(15" of annual rainfall)
Beyond/Raptor	(Imazamox):	18 months	
Callisto	(mesotrine):	18 months	
Harness/Degree	(acetochlor):	2 CS	
Permit	(halosulfuron):	36 months	
Starane	(fluroxypr):	NCS	
Status	(dicamba + diflufenzopyr):	120 days	
Spartan	(sulfentrazone):	36 months	
2, 4-D Family	(2, 4-D):	NCS	

NCS: Next Cropping Season

CS: Cropping Season

Agronomy Information



Commonly used Sugarbeet Herbicides

<u>Trade Name</u>	<u>Common Name</u>	<u>Notes</u>
Roundup	(glyphosate):	Check label for maximum use rates per season
Nortron	(ethofumesate):	Pre-early post applications (kochia control)
Poast/Select/Section	(sethoxydim):	Post emerge control of Vol. RR Corn
Outlook	(dimethenamid):	lay-by applications
Eptam	(EPTC):	lay-by applications
Dual Magnum	(s-metolachlor):	lay-by applications



PLANTING EQUIPMENT

Modern Equipment Used





RECOMMENDED PLANTER PLATE SIZES

JD – Plate - Orange – Plastic - MP, Light Green – Plastic - RP

JD – Vacuum - H 136445 - MP, A 51713 - RP, A 43066 - P200

Monosem NG+ - 4016 - MP, 4020 - MP & RP, 3622 - P200, 4025 – MP & RP & P200

White – 85047 - MP, N 857115 - RP, N 856067 - P200

Case IH – 80175 - MP, 8020 – MP & RP & P200

MP – Mini Pellet

RP – Regular Pellet

P200 – Pro 200