


# Some Tomatoes to Consider for the Great Plains

Dr. Chuck Marr  
Professor of Horticulture (Emeritus)  
Kansas State University



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Consider ways tomatoes can generate \$\$\$

Tomatoes are one of the most profitable crops (per unit basis) we grow and can significantly encourage consumer interest

How Tomatoes Make Money

- Marketable yield-less space
- Quality & flavor (Consumer Demand)
- Reduced pest problems (disease)
- Withstand environmental stresses

### Some varieties to consider..



- Trials with at least 12-15 plants -a reliable estimate of yields (*randomized-replicated trial*)
- Consistent harvest and grading procedures
- 'Secure' site (no loss of fruit)
- Trials in our region
  - St Joseph MO (Tom Fowler)
  - Edwardsville IL (Eliz Wahle)
  - Dixon Springs IL (Jeff Kindheart)
  - Ames IA + (Hank Taber)
- Not able to test all possible varieties- use 1 or 2 as a 'check' and compare newer varieties to the 'checks'

### Tomato Trial-St Joseph MO 2009

Variety:	Cartons/ Acre	Lb/ Plant	Lb/Fruit	Vine Size
Mt. Fresh Plus	2614	16.75	0.31	Lg,V
BHN 589	2516	16.13	0.29	lg
Red Defender	2377	15.23	0.29	M-Lg
BHN 602	2328	14.92	0.33	Med
Redline	2213	14.18	0.34	Med-Lg,V
BHN 871	2199	14.10	0.28	Med
Crista	2066	13.25	0.36	lg
Scarlet Red	2045	13.11	0.31	Lg,V
Congestoga	2025	12.98	0.30	lg
Amelia	1990	12.75	0.33	lg
BHN 876	1939	12.43	0.29	Med
Florida 47	1782	11.43	0.33	lg
Fletcher	1568	10.09	0.31	C-Med
Security 28	1561	10.01	0.32	Med
Bobcat	1467	9.40	0.36	Med
Polbig	1390	8.91	0.25	C-Med
Mt. Glory	1390	8.91	0.27	C-Med
Mt. Spring	976	6.25	0.24	C-Med


Upper third to half of varieties  
Note similar production  
Consistent for 2-3 years

### What's available now (standard or 'slicing' tomatoes)



- Semi-determinate vine
- Multiple disease resistance
- Uniform ripening (UG uniform green)
- Set fruit in hot weather (hot-set gene)
- Better flavor (furanol genetic trait)


### Uniform Ripening (UG Gene)



Fruit ripens uniformly- top to bottom and inside-outside. Uniformly ripe. No 'green shoulder' or waste when using.

### Meaty Firm Fruit

- Fruit holds into slices
- Can be chopped or diced
- Does not soften easily when stacked
- Modern consumers prefer
- Not irregular or rough like a 'beefsteak' type




### Semi-Determinate or "Determinate"- "Compact" Vine Habit

Standard vine                      Determinate/Compact vine




### Advantages of Compact Vine

- Adapted to raised bed culture
- Short cages or 'stake-weave'
- More stable in wind
- **Use less water and fertilizer**
- Closer spacing-more plants per row
- Yields comparable to large vined types



### Disadvantages of Compact Vine

- Shorter production (6-7 weeks)
- Later planting for season-long production
- Will not recover as rapidly from defoliation (hail or disease)
- Fruit tight in cages-hard to pick



### Longer harvest season?

- Early spring planting (plant set early May)
- **Summer planting (plants set mid-late June)**

June	July	August	Sept	Oct
● Set				

It is very difficult to get a 'semi-determinate' tomato to produce longer than about 6-7 weeks- maintaining quality and size

### Fusarium wilt

Fusarium wilt is a soil borne fungus that will persist from 10-15 years

There is **NO KNOWN CONTROL**





**Resistance to Fusarium wilt (F or Fol + numbers)**

Races 1 and 2- common in region

Race 3- deep south only now- may move this way

Most newer varieties resistant to races 1 and 2 (some even to 3)



Can get Fusarium anywhere in region

May come in on transplants or soil

Especially critical in permanent locations- high tunnel

**Leaf blight diseases (Septoria leaf spot and Early Blight)**

Fungus, encouraged to grow on leaves by warm, humid weather

Older leaves on plant. Usually after fruit load has developed



**Dealing with Leaf Blight Diseases**

Warmer, humid weather after fruit load has developed



Some tolerance in certain newer varieties- especially to Early Blight

Fungicide sprays are the main means of control

High yields= more blight potential

**Make sure you know your transplant source. Don't just get plants from anyone**

- Commercial transplant companies
- Vegetables only in the house
- Sanitation and good growing procedures
  - New/clean containers
  - Soil-less mixes or 'compost-based'
  - Insect monitoring and control

**Yes, but how do they TASTE!!**

Appearance

Color

Meatiness

Acidity

Sweetness

Texture

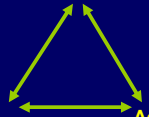


**What's responsible for flavor?**

Sugars (glucose, fructose)

Aromatic compounds

Acids (citric, malic)



cis-3-hexenal      trans-2-hexenal

cis-3-hexenol      6 methyl-5-heptene-2-one

hexanal            2-isobutyl thiazole

1-pentene-3-one    B-ionone

3-methyl butenal

About 10 'volatile' compounds in a delicate balance influencing aroma/flavor

**Furaneol (fur ann e ol)**

- Once, thought to be present in very low concentrations- about the same in all varieties
- In 1998, found it had been underestimated- higher in 'tastier' tomatoes
- Genetic trait to increase just the right amount- bred and tested for 8-9 years
- A few varieties now commercially available with higher 'furaneol' concentration. Usually described as 'good flavor'.

Varieties with 'improved flavor'

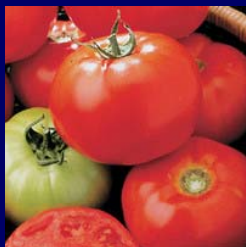
- Mountain Glory
- Red Defender
- SecuriTY 28
- FL 7514
- BHN 589 ?
- BHN 602 ?
- Scarlet Red
- May be others in addition to older varieties

Most of these will be discussed later in this presentation with pictures and comments

?= not sure of breeding strategies

**Celebrity**

Oldest of the 'semi-determinates'  
 (Most are now *Celebrity Supreme* with nematode resistance)  
 Moderately early  
 Moderate fruit size with some variability



**Mountain Spring**

Moderately early  
 Not much cracking  
 Moderate sized vine  
 Medium sized fruit



**Mountain Fresh Plus**

Midseason  
 Large fruit size, consistent  
 Larger, vigorous vine  
 Small 'stem scar'  
 Consistent over region



- FL 47
- FL 91 (hot set)
- FL 7514 (flavor)

Midseason production  
 Large, firm meaty fruit  
 Vigorous, strong vine  
 Good flavor (7514)



'Hot Set' trait when temperatures are consistently over 95F – especially with hot dry winds

**Amelia  
Crista**

Midseason production  
Vigorous vine  
Large fruit size  
'Smaller vine' Jet-Star type  
Fairly good crack resistance  
Slight 'edge' to Crista



**Scarlet Red**

Early-Midseason  
Dark red, fleshy interior  
Uniform, large fruit  
Medium size vine  
Good flavor



**Red Defender  
SecuriTY 28**

Midseason production  
Large, consistent fruit  
Good flavor  
Medium sized plants



**Mountain Glory**

Early-midseason  
Large, consistent fruit  
Medium vine  
Good flavor  
Deep red color, good interior



Has not done as well in Missouri and Kansas trials as in Illinois

**Fabulous**

Midseason  
Large fruit, not much cracking  
Large, vigorous vine-indeterminate  
Good eating quality, gourmet type  
Slightly softer fruit- an older variety that is often mentioned as good flavored.



**Pol big**

Vigorous vine-indeterminate but not as 'sprawling' as most  
Very early but will produce later too  
Large, fairly good quality fruit- a little more varied in size




**BHN 589-** *(has done well in high tunnels)*

**BHN 602**

**BHN 640**

Good sturdy vine  
Midseason to late  
Good quality

*BHN is a seed company in Immokalee FL that does not name varieties- only uses the BHN and numbers as indicators*



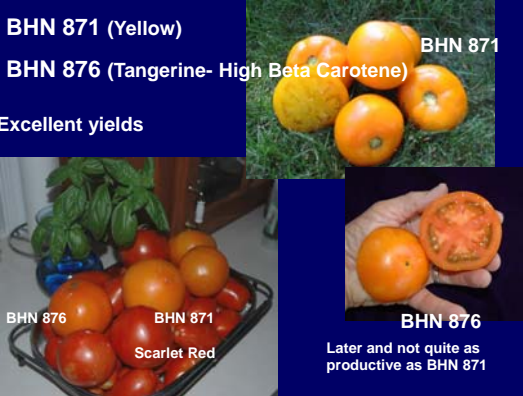
**BHN 871 (Yellow)**

**BHN 876 (Tangerine- High Beta Carotene)**

Excellent yields

**BHN 876** **BHN 871**  
Scarlet Red

**BHN 876**  
Later and not quite as productive as BHN 871



High Beta Carotene = health benefits of 'yellow vegetables' vitamin A

Tangerine-orange color

20-30 times more B carotene than regular tomatoes

**BHN 876**

High Lycopene = antioxidant/ cancer prevention of red pigment in tomato


Smaller fruit size

Lower yields

40% more lycopene

Not much more of a red color than standard reds

**Tasti Lee**



**Conestoga**


Heirloom 'Marmande'-like shape

Brilliant red color

Vigorous vine

Early

A little softer than others



**Torbay**


Attractive 'pink' fruit

Moderate sized vine

Moderate yields

Large size fruit

*Better than any other 'pink' that is available on the market*



**Mt Magic**

Large 'cherry' type

Excellent yields

Semi-determinate vine

Consistent quality

*Smaller semi-determinate 'cherry' is Mt Belle*



This presentation and list of varieties will be posted at Univ of Missouri/Buchanan County website in a few weeks after GPVG conference

[www.extension.missouri.edu/buchanan](http://www.extension.missouri.edu/buchanan)

Further questions- later on

Chuck Marr

[cmarr@ksu.edu](mailto:cmarr@ksu.edu)

**Any questions NOW!**

