

2005 Potato Leafhopper Variety Selection and Culinary Evaluation Trials

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Introduction

During the summer of 2002, leafhopper populations arrived early and caused considerable damage to potato crops throughout New York. Organic growers were especially hard-hit as there are no effective organic controls against leafhopper. As a result, variety trials on Three different organic farms were carried out in 2003, 2004 and 2005. The goal was to evaluate and find varieties that were resistant to leafhopper damage and produced acceptable yields without spraying to control the leafhoppers.

2005 Results

The Columbia County trial was again held at Jean-Paul Cortens farm. The field was planted on May 19. The Ulster County trial was held at Ron Kholsa's farm. This was a dry year for both locations. The Ulster location did not receive irrigation while the Columbia location was irrigated three times during the summer. Yields at both locations suffered as a result but were particularly low at the Ulster location. Marcy, L-235 (Prince Hairy) and Adirondack Blue were the three best performers at the Dutchess location. At the Columbia location, L-235 (Prince Hairy), Adirondack Blue and NY-126 were the high producers.

2005 Potato Leafhopper Variety Field Trial

Columbia County: Roxbury Farm, John-Paul Courtens

Ulster County: Huguenot Street Farm, Ron Kholsa

* Harvested from 30' of row

LH Rating: 1-5

1 = no leafhopper damage

5 = Heavy leafhopper damage, vines dead

<u>Variety</u>	<u>Location</u>	<u>LH Rating</u>	<u>Weight*</u>
Green Mt.	Columbia	1.8	28
	Ulster	2.4	13
Chieftan	Columbia	1.5	23.5
	Ulster		
Marcy	Columbia	2.3	34
	Ulster	1.6	35
Red Norland	Columbia	2.9	30
	Ulster	3.3	
Adirondack Red	Columbia	2	27.75
	Ulster	2.7	17
Adirondack Blue	Columbia	1.6	45.5
	Ulster	2.1	22

Eva	Columbia	0.9	33
	Ulster		
Keuka Gold	Columbia	2.2	42
	Ulster	2.8	8
Pike	Columbia	2.2	27.75
	Ulster	2.5	11.5
Salem	Columbia	2.3	24.75
	Ulster	2.5	4.5
Rosa	Columbia	1.3	35.5
	Ulster	2	9
L235	Columbia	2.9	48
	Ulster	1.8	28
NY-126	Columbia	1.6	43
	Ulster	2.8	6
Yukon Gold	Columbia	2.4	21.25
	Ulster	2.4	9
Elba	Columbia	2	17
	Ulster	1.7	10
Katahdin	Columbia	1.1	28.5
	Ulster	2	10
NY-123	Columbia	3.3	41
	Ulster		

Culinary Evaluation

An additional trial was set up with 8 varieties for culinary and taste evaluation. Two hundred and fifty pounds of the 8 selected varieties were delivered to Schenectady County Community College (SCCC) to be evaluated by 180 culinary arts students. An evaluation form was put together for the students to use when using the different potato varieties. Each potato variety was prepared in 14 different recipes and judged for appearance, boiling, baking, frying and taste. Potatoes were also given to the Culinary Institute of America (CIA) for evaluation but were not done by the time of this report.

Tuber Appearance

Variety	Tuber Shape 1=Acceptable 5=Unacceptable	Variety	Skin Texture 1=Acceptable 5=Unacceptable
Red Chieftain	1.8	Eva	1.8
Eva	1.9	Katahdin	2.1
Keuka Gold	2.4	Keuka Gold	2.1
Salem	2.5	Salem	2.5
Marcy	2.5	Yukon Gold	2.5
Katahdin	2.6	Red Chieftain	2.6
Red Norland	2.6	Marcy	2.8
Yukon Gold	3.0	Red Norland	2.8

Variety	Skin Color		Variety	Interior flesh color before cooking	
	1=Acceptable	5=Unacceptable		1=Acceptable	5=Unacceptable
Eva	1.8		Keuka Gold	1.6	
Keuka Gold	2.0		Eva	1.6	
Katahdin	2.1		Red Chieftain	1.8	
Red Chieftain	2.2		Red Norland	1.9	
Salem	2.3		Katahdin	2.0	
Red Norland	2.4		Salem	2.4	
Yukon Gold	2.4		Yukon Gold	2.5	
Marcy	2.6		Marcy	2.9	

Variety	Overall Tuber Appearance
Eva	1.8
Katahdin	2.2
Keuka Gold	2.0
Marcy	2.7
Red Chieftain	2.1
Red Norland	2.4
Salem	2.4
Yukon Gold	2.6

Boiling Performance

Variety	Color after boiling		Variety	Boiling - Body	
	1=White	5=Gray or dark		1=Stays together, firm	5=Falls apart
Red Chieftain	1.6		Red Chieftain	1.4	
Salem	1.9		Red Norland	2.0	
Keuka Gold	1.9		Keuka Gold	2.2	
Katahdin	2.0		Marcy	2.5	
Yukon Gold	2.3		Yukon Gold	2.5	
Red Norland	2.4		Eva	2.7	
Eva	2.9		Salem	3.4	
Marcy	3.0		Katahdin	3.4	

Variety	Boiling - Pastiness		Variety	Boiling - Texture	
	1=Creamy	5=Gluey		1=Acceptable	5=Unacceptable
Red Chieftain	2.5		Red Chieftain	1.9	
Yukon Gold	2.5		Red Norland	2.0	
Eva	2.6		Salem	2.0	
Keuka Gold	2.7		Yukon Gold	2.1	
Katahdin	2.7		Keuka Gold	2.1	
Salem	2.8		Marcy	2.5	
Red Norland	3.0		Eva	2.5	
Marcy	3.1		Katahdin	3.0	

Variety	Boiling - Flavor		Variety	Overall boiling performance
	1=Flavorful	5=Bland		
Katahdin	1.8		Red Chieftain	1.9
Red Chieftain	2.1		Keuka Gold	2.2
Salem	2.2		Yukon Gold	2.4
Keuka Gold	2.3		Red Norland	2.4
Marcy	2.4		Salem	2.4
Yukon Gold	2.4		Katahdin	2.6
Eva	2.5		Eva	2.6
Red Norland	2.5		Marcy	2.7

Baking Performance

Variety	Baking Texture		Variety	Baking - Moisture	
	1=Fluffy	5=Dense		1=Moist	5=Dry
Marcy	2.4		Salem	1.6	
Red Chieftain	2.5		Keuka Gold	2.2	
Eva	2.5		Katahdin	2.2	
Keuka Gold	2.8		Yukon Gold	2.3	
Katahdin	2.9		Red Chieftain	2.4	
Yukon Gold	3.0		Eva	2.4	
Red Norland	3.1		Marcy	2.7	
Salem	3.1		Red Norland	2.8	

Variety	Baking - Skin	Variety	Baking - Flavor
	1=Crispy 5=Moist		1=Flavorful 5=Bland
Salem	2.0	Salem	1.4
Keuka Gold	2.2	Red Chieftain	1.9
Katahdin	2.9	Yukon Gold	2.0
Red Chieftain	2.9	Eva	2.3
Red Norland	2.9	Marcy	2.3
Eva	3.2	Katahdin	2.4
Yukon Gold	3.3	Keuka Gold	2.8
Marcy	3.5	Red Norland	3.3

Frying Performance

Variety	Frying - Outside Texture	Variety	Frying - Inside Texture
	1=Crispy 5=Soggy		1=Creamy 5=Dry
Keuka Gold	1.5	Keuka Gold	1.3
Yukon Gold	1.6	Salem	2.1
Red Norland	1.7	Katahdin	2.3
Red Chieftain	1.8	Red Chieftain	2.5
Salem	2.1	Yukon Gold	2.5
Eva	2.3	Eva	2.6
Marcy	2.8	Marcy	2.6
Katahdin	3.0	Red Norland	2.7

	Overall frying performance
Keuka Gold	1.4
Yukon Gold	2.0
Salem	2.1
Red Chieftain	2.2
Red Norland	2.2
Eva	2.4
Katahdin	2.6
Marcy	2.7

Results

Depending on the cooking method, the results for a particular variety changes. Some varieties did better boiling and other varieties did better baking. This is not surprising given that all potatoes are not the same. The biggest surprise was in the frying results. Chefs want a variety that browns up quickly while Cornell and the chipping industry want a variety that stays white when fried.

Everyone involved with the culinary evaluation learned something. The chefs and culinary students learned which varieties did well when performing different culinary tasks. The Cornell breeder learned how varieties are evaluated differently. Growers are gaining information that will help in marketing.

Impact

The 2005 trial went beyond leafhopper variety selection and into an area that is very important to the potato industry. For years, everyone has been saying we need to market potatoes by variety. The results from the culinary evaluation are extremely valuable. The remarkable thing about the data is that it did not exist, before this trial, in a format useful to chefs and potato users. The culinary evaluation was greeted very enthusiastically by the chefs. Next year, it will take place at Rochester Institute of Technology (RIT) as well as the other two culinary schools. Chefs, above everyone else, know all potatoes are not the same. They are the ones who have had failures. They have made glue when trying to make mashed potatoes. They have had potatoes fall apart or turn gray when boiling. They know the importance of knowing what a potato will do. That is why this trial is so important. Hopefully, with continued culinary evaluation, we will be able to establish what a potato variety does. The focus is on NY varieties. Hopefully grocery store chains will start selling potatoes by what they do as apposed to shape and color. Hopefully chefs will demand their produce buyers be selective in the potato varieties they purchase. Hopefully the consumer will demand to know what variety they are buying. Information from this trial is the first step moving in those directions.