



Newsletter Extension

Fruit ICM News

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Calendar

August 4 - 20: The Ohio State Fair, Columbus, OH

Focus on Varieties: 'Pristine' Apple

Source: Dr. Diane Miller, Associate Professor, Horticulture & Crop Science, OSU

'Pristine' is a clean, yellow skin, crisp flesh summer apple we have in trial in the NE-183 apple variety planting at OARDC. It has high sugar, combined with high acid, and very high quality for such an early apple. It will have a niche for farm markets if customers are allowed to *taste* the fruit! Customers without apple savvy may mistake it for an early season cooking apple (Lodi or Transparent), although Pristine is much more attractive and somewhat larger sized than those early green cooking apples. Growers will like the fact that Pristine is an excellent keeping apple for an early apple. It doesn't crack or pop! Fruit can be left at room temperature for a week and still be crisp and juicy. When Pristine is sliced the juice runs out, so the effect is an exploding crispness (but not as exploding as Honeycrisp). Fresh slices will brown fairly quickly.

Last year we kept it in our cold storage until mid-October with good quality. Of course, there is no reason to keep Pristine that long, the quality competition is too stiff from early September onward, but

from the "happy consumer" standpoint, Pristine can be mishandled after purchase and still keep and taste good. When it does break down it turns brown/black under the skin and is obviously over-ripe. We also saw some storage scald on early-harvested apples in 1999. When cooked, the sauce is very yellow with some chunks. It is flavorful and attractive, but entirely a different sauce than Lodi or Transparent.

Pristine is from the PRI (Purdue-Rutgers-Illinois) scab-resistant apple breeding program and was originally in trial as Co-op 32. Because of the disease-resistance (no fungicides required) this variety has much promise as a "backyard" apple and should be recommended in all "backyard growers" packages. We saw fire blight in this variety in 2000. The blight appeared as 2-5 strikes per tree moving into 2 year wood. Compared with the severity of the blight in other varieties in this NE-183 planting, I would label Pristine as moderately susceptible to blight. Few apples were lost and the trees are vigorous, so the blighted limbs will be easily replaced.

Pristine sets a new standard for high quality, early-season eating apples. We harvested the first apples July 20 with a second picking July 24 and a third picking July 28. Unfortunately, the trees exhibited "fruit drop" this year even though we were harvesting for yellow color. The tree is vigorous with large leaves. The fruit is borne towards the end of branches which can droop so branches should be headed back. The fruiting can become biennial if the tree is not thinned early. Hand thinning in 1999 resulted in poor return bloom on 2 of the 5 trees in the planting.

Of course, a problem with early season apples is getting people in the mood for apples during peach season. Pristine is good enough that, in the farm market setting, with encouragement to taste, people will likely buy some Pristine along with their peaches. I don't see any hope for wholesale marketing this apple however! Like all yellow apples, Pristine shows the bruises from rough handling. In addition, the somewhat irregular shape and some red blush/ no red blush limit the uniformity of appearance.

Pristine has been used as a parent in several of the Midwest Apple Improvement Association crosses for its disease resistance, excellent fruit finish, crisp texture and flavor. All the excellent traits of Goldrush and Pristine grouped together, would be a terrific apple. Conversely, all the negative traits expressed together would be a good apple to throw at a telephone post!

Great Moments in Apple History

Thanks to Mitch Lynd for offering his research, reflections, and insightful prose. We feel honored that he would share it with us.

The Beginning: From the very beginning, the ancients were truly enamored with fruit. Apart from milk and honey, fruit is nature's only pleasure-laden natural food. From the beginning apples have been associated with love, beauty, luck, health, comfort, pleasure, wisdom, temptation, sensuality, sexuality, virility and fertility. Stories and traditions about man's origins connect him to a garden of paradise filled with fruit trees. The stories are essentially the same whether it be the Semitic Adam, the Teutonic Iduna, the Greek Hesperides, or the Celtic Avalon, **man's idea of paradise centers on an abundance of cultivated fruit, its sensual irresistibility, and the consequential calamity of its seduction.**

In Greek mythology, Gaia, or Mother Earth, presented a tree with golden apples to Zeus and his bride Hera on their wedding day. Guarded by Ladon, a serpent who never slept, the apple tree was in the garden of the Hesperides, daughters of the Evening Star. These golden apples became involved with many tales of love, bribery, and temptation ranging from the abduction of Helen of Troy to the defeat

and marriage of Atlanta. The sexual and romantic connotations of the apple were powerful reasons why apples came as dessert at the end of the meal. They not only tasted heavenly and were good for digestion, but were regarded as a cunning transitional aphrodisiac for the pleasures that followed. Is it any wonder that apples became the most sought after fruit on earth? They have taken their rightful place in the pleasure gardens of the wealthy throughout the world in spite of the almost instinctive knowledge that eating them may lead one to a life of chaos and destruction.

8,000 B.C.: Nomadic hunter/gatherer societies invent agriculture and begin to "settle" in places throughout the "fertile crescent" from the Nile through the Tigris and Euphrates, the Indus, and Yellow River Valleys. As both trade and military expeditions begin among these earliest civilizations, **dessert apples quickly spread from the forests of their origin in the Tien Shan mountains of eastern Kazakstan throughout the "civilized" world.** Each settlement seeks to embellish their "paradise", or pleasure grounds, with the most tempting apples of the forests. Previously isolated gene pools from some of the 25 distinctly different species of apples found throughout the world are now brought in contact with each other and **gene transfer among apple species occurs.** Agriculturalists are charmed. Naturalists are alarmed.

6,500 B.C.: Remains of **apples** are found among excavations at Jericho in the Jordan Valley and dated to this time period.

5,000 B.C.: Feng Li, a Chinese diplomat, gives up his position when he becomes consumed by **grafting** peaches, almonds, persimmons, pears, and **apples** as a commercial venture according to "The Precious Book of Enrichment", part I, chapter 4. Agriculturalists are charmed. Naturalists are alarmed.

2,500 B.C.: Dried apple slices are found on saucers in the tomb of Queen Pu-Abi at Ur near Basara, in Southern Iran, linking royalty to the irresistible seduction of **apples.**

1,500 B.C.: A tablet found in northern Mesopotamia records the sale of an **apple** orchard by Tupkitilla, an Assyrian from Nuzi, for the significant sum of 3 prized breeder sheep. Hittite Law Codes specify a three shekel penalty for anyone allowing a fire to destroy an **apple orchard.**

800 B.C.: Homer's Odyssey recounts the memory of his fruit orchard to his aging father: "Twelve pear trees bowing with their pendant load, and ten, that red with blushing **apples** glow'd," . . . and later tells about how King Tantalus was "**tantalized**" by the unreachable "fruit over his head: pears, pomegranates, sweet figs, **apples** and juicy olives".

401 B.C.: Greek historian and essayist, Xenophon is so inspired by walled fruit gardens throughout the Persian empire that he establishes one on his own estate in Greece. **He then proceeds to coin a new Greek word from the Persian *pairidaeza*, or walled garden, later becoming the Latin *paradisus*, and finally the English *paradise.***

323 B.C.: Theophrastos describes six varieties of **apples** and discusses why budding, grafting, and general tree care are required for optimum production and says seeds almost always produce trees of inferior quality fruit. Agriculturalists are charmed, naturalists are alarmed.

200 B.C.: Latin emerges from a localized dialect in Central Italy to a full and precise language still used in biology, law, medicine, and religion. The Latin "Fruor" meaning "I delight in" is the source of our word "fruit".

100 B.C.: Roman poet Horace notes that Italy has nearly become one big fruit orchard and the perfect

meal begins with eggs and ends with **apples**. **Apples** moved west with the rise of the Roman empire as the Romans adopted the **apples** and orchard skills of the Greeks and Persians before them. Apples were carried to the far reaches of the Roman Empire, including continental Europe and the British Isles. They even created a deity of the fruit trees, the goddess Pomona. Like the Persians and the Greeks, the Romans and many cultures since have responded to the basic human longing for a time and place where men and women are free from the battle with nature for food and shelter. This place is normally symbolized by a garden of paradise and pleasure, complete with fruit-laden trees featuring **apples**.

50 B.C. Cicero, author, statesman, and philosopher, urges his Roman countrymen to save their apple seeds from dessert to develop new cultivars. Agriculturalists and naturalists concur.

50 A.D.: J.M.Columella, a Spaniard living in Rome, an early fruit tester, and stickler for quality, noted that each fruit seedling was a new and unique cultivar "none to be kept for a long time unless approved by experiment", an otherwise post-Linnean conclusion. To illustrate his point he adapted a verse from Virgil:

It serves no end their* numbers to describe,
The man that's fond of this laborious task,
With equal ease, may learn how many sands,
By western winds are tossed in Libyan plains.
(*i.e. seedling cultivars)

79 A.D.: Pliny the Elder, in his *Natural History*, describes 20 varieties of **apples**.

200 A.D: Famous Greek physicians living in Rome, Galen and later Hippocrates, recommend **sweet apples** with meals as aids to digestion and **sour apples** only for fainting and constipation.

400 A.D.: Saint Jerome, founder of Monasticism, tells his monks to spend more time grafting and budding fruit trees "to escape sloth and the devil".

650 A.D.: *The Koran*, codified by Caliph Utman, hails fruit as a sublime gift of God.

900 A.D.: A sacred Shiite drama is written by a secret society of Moslem purists featuring the death of Mohammed in which he inhales eternal life by inhaling the scent of an apple an angel had brought him. Curiously, many centuries earlier, Aristoteles was said to have kept death away by holding an apple and inhaling its life-sustaining fragrance. Finally and consciously he drops the apple, thus releasing his soul.

1100 A.D.: The Medical School of Salerno teaches the therapeutic value of **apples** with regard to disturbances of the bowels, lungs, and nervous systems.

1240 A.D.: Albertus Magnus of Cologne, bishop, naturalist, and influential philosopher, agonizes in his *De Vegetabilibus* over whether a fruit tree has a soul. Albertus' then novel philosophy is that the only way to advance knowledge of nature is by searching for nature's hidden principles rather than by relying on the writings of others, however venerable. Discarding the scholastic concept of fruit as a ready-made product of creation, Albertus held that cultivars developed from wild forms, centuries before Darwin draws similar conclusions about the origin of species.

1470 A.D.: *The Fall of Man*, a painting by the popular and highly respected Hugo Van Der Goes, in clear detail of both leaves and fruit, depicts an **apple** tree in the biblical Garden of Eden, complete with Adam and Eve and the Devil. Thereafter artists everywhere choose apples for the Garden of Eden, even

though the **apples** were no doubt borrowed from a similar creation story in Greek mythology, causing apple demand among illiterate Christians to plummet. Among learned Christians, e.g. in the monasteries and royal courts, apples continued to flourish.

1618 A.D.: William Lawson of Yorkshire, writes *A New Orchard and Garden*, the first book in the English language about the practical aspects of apple growing. He is more often quoted on his sensual observations. "All delight in orchards". "For whereas every other pleasure fills some one of our senses, and that only with delight, this makes all senses swim in pleasure". "What can your eyes desire to see, your ears to hear, your mouth to taste, your nose to smell that is not to be had in an orchard, with abundance of variety." Two mottos appear on the title page: "Skill and paines bring fruitful gaines," and "No man is an island." Lawson, who believed orcharding offered the best of business and pleasure, had a profound influence on the Lynd family of Yorkshire.

1665 A.D.: Sir Isaac Newton watches an **apple** fall to the ground and, wondering why it fell in a straight line, is inspired to discover the laws of gravitation and motion.

1751 A.D.: Carl Von Linne, founder of organized Botany, revealed his contempt for horticulture when he said, "All our fruit trees are a result of Man's interference and, therefore, unworthy of the attention of even the lowliest botanist." Agriculturalists groaned. Naturalists applauded.

1790 A.D.: Thomas Andrew Knight of England begins the first **controlled apple hybridization** program for apple improvement. Agriculturalists are charmed and naturalists are alarmed.

1803 A.D.: Ohio becomes a state, John and William Lynd arrive at what is today South Point, Ohio from Cookstown, N. Ireland. John plants apple trees purchased from Rufus Putnam at Marietta before Johnny ("Appleseed") Chapman gets into the business.

1904 A.D. "**An apple a day keeps the doctor away,**" proclaimed J.T. Stinson in an address to the St. Louis Exposition.

1929 A.D.: Edward Bunyard, author of "The Anatomy of Dessert", comments on apples and the sixth sense "**the crunch is the thing, a certain joy in crashing through living tissue, a memory of Neanderthal days**".

1945 A.D.: An **apple breeding program** is initiated jointly at Purdue and the University of Illinois using f2-26829-2-2, the largest and highest quality apple known at the time to have resistance to the big three diseases of apples: fire blight, scab, and powdery mildew. It came from a brilliant, out of the box, cross made by Dr. C. S. Crandall at the Univ. of Illinois earlier in the 1900's. He crossed Rome with Malus Floribunda 821, a pea-sized crab apple that was highly resistant to all the major diseases of apple.

1988 A.D.: The great Alar hoax is perpetrated on the public as a scare tactic for fund raising by the Natural Resources Defense Council. Apple demand falls to zero as the media rushes to report one sensationalized story after another about harmless, nearly nonexistent chemical residues on apples. Perception overrides reality and the U.S. apple industry goes into a steep economic decline.

1989 A.D.: Researchers at Cornell University used a "gene gun" to successfully transfer an anti-bacterial gene from a *Cecropia* moth to a fire blight susceptible apple tree. This gene transfer from an animal to a plant enabled the tree to develop its own fire blight resistance, and trees made from buds or graft wood from this tree also had blight resistance. Bio-tech as demonstrated could save the apple industry and consumers millions of dollars. Agriculturalists are charmed. Naturalists are alarmed.

1993 A.D.: The world's first large scale commercial planting of naturally **disease resistant apples** is planted at Lynd Fruit Farm on Morse Rd., Pataskala, Ohio. The trees, then known as HER4T16, are later elevated to "Co-op 38" and finally named Goldrush. It is the first large-scale application of the breeding program begun early in this century at the University of Illinois. Agriculturalists and naturalists applaud.

1995 A.D.: Mitch Lynd is named Apple Grower of the Year by the American Fruit Grower Magazine and the U.S. Apple Association from over 9,000 apple growers in the U.S and Canada.

1998 A.D.: Mitch Lynd and co-founder Ed Fackler start the Mid West Apple Improvement Association, a group dedicated to breeding disease resistant late bloomers to naturally escape fire blight, scab, powdery mildew, cedar apple rust, and late spring freezes, thus reducing the use of fungicides, antibiotics, and orchard heating. Agriculturalists and naturalists applaud and chemical companies cringe. Land grant colleges of agriculture are in a bind because, increasingly, their funding comes from pesticide manufacturers instead of the people through taxation and charitable giving.

2000 A.D.: Researchers at the Univ. of California discover powerful new anti-oxidants in apples.

The Future: Bio-tech will make life better for every one of us, while hard core naturalists are still wringing their hands with worry about what could happen if a gene causes unanticipated and undesirable environmental effects because it is now being expressed in a different organism. Thorough testing and labeling puts these fears to rest.

Land values continue to escalate while the world is producing more apples. The U.S. will no longer be a competitive producer of low cost commodity apples for companies like Walmart and Kroger because of the relatively high cost of land, labor, and water. Most Americans will little note nor long remember that Americans were once food self-sufficient. Most Americans will continue to eat more and more, for less and less, getting fatter and fatter on foreign produced food conveniently served through drive through windows scattered across an asphalt-paved landscape. Most orchards will continue to be bulldozed and residential housing sites will replace them, except for the few where the orchardists are clever enough to direct market the "experience" of visiting an orchard as well as the apples. Most of the next generation of Lynds will not grow apples because the task is too complex and the rewards too small. This is not new. It's been that way for the last 200 years.

However, a few, who are the cleverest of marketers and growers of perfection, will continue to provide the romance, pleasure, and temptation that has seduced mankind for centuries. There will always be a Lynd Fruit Farm for those who want to immerse themselves in the joy of living systems. A green place, carpeted with grass and lined with trees punctuated with red, yellow, and orange. A place where song birds sing and kestrels soar. A place where the laughter of children and the nostalgic memories of grandparents converge. A place where you can crunch into the juicy living flesh of the finest fresh picked apples on earth and savor life as it was meant to be lived. The experience renews the soul and the memories can be yours forever.

Fruit Observations

Insect Key

AM: Apple maggot
CM: Codling moth
DWB: Dogwood borer
LPTB: Lesser peachtree borer
OBLR: Oblique banded leafroller
OFM: Oriental fruit moth
PC: Plum curculio
PTB: Peachtree borer
RBLR: Redbanded leafroller
SJS: San Jose scale
STLM: Spotted tentiform leafminer
TABM: Tufted apple budmoth
VLR: Variegated leafroller

Site: Waterman Lab, Columbus (7/27-8/2)

Source: Dr. Celeste Welty, OSU Extension Entomologist

Traps used: STLM=wing traps, SJS=Pherocon-V, Others=Multipher-1® traps

Apple

RBLR: 14 (down from 15)
STLM: 294 (down from 622)
DWB: 0.5 (down from 2)
SJS: 0 (unchanged)
CM: 15.7 (up from 7.4)
OBLR: 0 (down from 1)
TABM: 1 (down from 2)
VLR: 1 (up from 0)
AM: 0.3 (down from 1)

Peach

OFM: 38 (up from 15)
LPTB: 1.0 (down from 2.5)
PTB: 9 (up from 6.5)

Site: East District; Erie & Lorain Counties (7/27-8/01)

Source: Jim Mutchler, IPM Scout

Traps Used: STLM=wing traps, SJS=Pherocon-V, Others=Multipher® traps

Apple

RBLR: 1.4 (up from 0.1)
CM: 4.5 (up from 1.5)
SJS: 201 (up from 5.1)
AM: 3.3 (up from 0.4)

Peach

OFM: 11.0 (up from 6.7)
RBLR: 2.0 (up from 0.3)
LPTB: 12.0 (up from 6.3)
PTB: 14 (up from 12)

Other pests: green apple aphid, Japanese beetle, scab, potato leafhopper

Beneficials at work: lacewing eggs, larvae, & adults, orange maggots, white maggot, *Stethorus punctum*

Site: West District; Huron, Ottawa, & Sandusky (7/26-8/01)

Source: Gene Horner, IPM Scout

Traps Used: STLM=wing traps, SJS=Pherocon-V, Others=Multiplier® traps

Apple

RBLR: 6.3 (up from 0.3)

SJS: 9.2 (up from 1.2)

CM: 1.4 (up from 0.3)

AM: 0.7 (up from 0)

PC: 0 (unchanged)

OBLR: 0.7 (down from 1.0)

Peach

OFM: 6.3 (up from 3.0)

RBLR: 9.8 (up from 0.3)

LPTB: 29.3 (up from 15.3)

PTB: 4.5 (up from 0.3)

Other pests: green apple aphid, potato leafhopper, Japanese beetle, obliquebanded leafroller damage, tarnished plant bug damage, green peach aphid

Beneficials at work: Green lacewing eggs & adults, banded thrips, lady beetles, brown lacewing adults, parasitic wasps, predator mites, orange maggots, *Stethorus punctum*

Site: Wayne County (7/27-8/02)

Source: Ron Becker, Extension Program Assistant

Traps used: STLM=Wing traps, PC=Circle trunk trap, Others=Multiplier® traps

	Apple			
	North	South	East	West
RBLR:	0.3	27	7	0.75
STLM:	717	175	22	284
CM:	4.8	11	6.7	21.75
PC:	0.9	0	0	0.6

	Peach		
	North	South	West
OFM:	0	34	58.5
LPTB:	0	2	0
PTB:	0	3	9

Heavy Japanese beetle causing fruit and foliage damage in most blocks. Blister spot is also evident in all blocks. European red mite and two spotted spider mite are light to moderate in apples and peaches and heavy in plums. Codling moth numbers are over threshold for treatment in most blocks with light damage being found on the fruit.

Northern Ohio Apple Scab Activity - SkyBit Product

SkyBit based on observations: August 1-3; possible infection & damage

Based on Forecasts: August 4; possible infection & damage

North Central Ohio Spectrum Technologies Orchard Monitors for Apple Scab

Spectrum Technologies Monitors and Software* Observations: July 4, 11, 15, 16, 27; Medium Infection, July 30; Heavy infection
(Software* based on Modified Mills Chart)

Northern Ohio Fire Blight Activity - SkyBit Product

SkyBit based observations: August 1-3; possible infection and damage

Based on Forecasts: August 6-11; possible infection & damage

Northern Ohio Sooty Blotch - SkyBit Product

SkyBit based observations: August 1-3; possible infection and damage

Based on Forecasts: August 4-11; possible infection & damage

Degree Day Accumulations for Selected Ohio Sites January 1, 2000 to date indicated

Location	Actual DD Accumulations August 2, 2000		Forecasted Degree Day Accumulations August 9, 2000			
	Base 43° F	Base 50° F	Base 43° F	Normal	Base 50° F	Normal
Akron - Canton	2532	1630	2744	2749	1788	1862
Cincinnati	3085	2100	3331	3461	2292	2446
Cleveland	2540	1654	2753	2693	1812	1823
Columbus	3047	2076	3273	3039	2247	2101
Dayton	2972	2005	3201	3110	2180	2171
Mansfield	2550	1659	2761	2724	1816	1844
Norwalk	2646	1751	2855	2681	1906	1823
Toledo	2654	1740	2863	2678	1894	1823
Wooster	2627	1714	2828	2603	1861	1732

Youngstown	2445	1548	2645	2543	1694	1687
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Phenology

Coming Events	Range of Degree Day Accumulations	
	Base 43 F	Base 50 F
Peachtree borer flight subsiding	2230-3255	1497-2309
Oriental fruit moth 3 rd flight peak	2389-3267	1712-2326
Redbanded leafroller 3 rd flight begins	2389-3113	1722-2209
Spotted tentiform leafminer 3 rd flight peak	2415-3142	1728-2231
San Jose scale 2 nd flight subsides	2494-3257	1662-2302

Thanks to Scaffolds Fruit Journal (Art Agnello)

Preliminary Monthly Climatological Data for Selected Ohio Locations July 2000

Preliminary Monthly Climatological Data for Selected Ohio Locations

Weather Station Location	Monthly Precip	Normal Monthly Precip	Year-to-Date Precip	Normal Year-to-Date Precip	Average High	Normal High	Average Low	Normal Low	Mean Temp.	Normal Mean
Akron-Canton	6.81	4.08	30.40	21.87	77.6	82.3	57.9	61.5	67.8	71.9
Cincinnati	3.53	4.24	31.25	25.63	81.9	85.5	63.3	64.8	72.6	75.1
Cleveland	2.57	3.52	23.72	20.99	76.8	82.4	59.2	61.4	68.0	71.9
Columbus	4.11	4.31	26.15	23.18	81.6	83.7	63.3	62.7	72.2	73.2
Dayton	2.97	3.54	20.68	22.42	81.4	84.9	62.4	63.4	71.9	74.1
Mansfield	3.34	4.04	25.38	23.28	77.8	82.1	59.1	62.0	68.5	72.0
Norwalk	8.47	4.16	31.12	21.10	76.4	82.7	61.7	60.7	69.0	71.7
Toledo	2.29	3.27	22.77	19.03	80.2	83.4	60.4	60.6	70.3	72.0
Wooster	1.84	4.05	20.33	21.43	79.7	83.6	57.6	59.7	68.7	71.6
Youngstown	4.28	4.07	23.62	21.86	77.5	81.3	56.4	59.3	67.0	70.3

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Temperatures in degrees F, Precipitation in inches

Record set: Low - 24th , Cleveland 50°

Table Created by Ted W. Gastier, OSU Extension from National Weather Service, OARDC and local data