

# Harsh Winter hurts plants

CREAMERY - Winter weather conditions in mid February have threatened plant quality and survival, according to County Agent Paul Reber. Gardeners are concerned about winter's influence on spring flowering and the quality of the total plant.

It is still too soon to see the results of this year's sub-zero temperatures. Weather-related plant problems are compounded when low temperatures are accompanied by severe winds. Under these conditions, frozen plant tissue is capable of losing water that can't be replaced by water from the frozen soil. This is similar to what occurs when washed clothes are hung out to dry on a winter day. The wet clothes quickly freeze, but water molecules are continually being blown from the cloth. When all the water has been blown away, the clothes are dry.

Reber indicated the chemical nature of water in plant tissues, as well as the physical qualities of plant tissues themselves, retards the drying process. Even with the safeguards of nature, however, water is lost. When a critical amount of water is lost, tissue injury and/or death can occur.

The best protection against wind-induced injury is a reduction in the total amount of air moving past the plant. Fortunately, not all plants are equally susceptible to wind injury, so durable species can be used to protect less durable ones. This is essentially the concept of windbreaks.

Observing wind patterns on your property will help in identifying sites that are more severe for plants than others. Generally, narrow areas between structures and bed areas that extend outward from an exposed corner receive the greatest air movement.

A lack of snow cover in a spot is a

good indication of excess wind. In these areas plan to set up the hardiest plants or deciduous species less susceptible to wind damage.

The construction of artificial barriers may be another wind control solution. Screens and fences won't stop the wind, but they help slow it down or channel it away from plants, walkways and houses. Remember, screens may function as snow fences. Place them so snow won't accumulate on walkways or driveways.

The warm weather we had earlier this winter will also influence spring plant quality. Temperatures in the 50's and 60's tend to keep flower buds more active and less dormant. A number of plants were in bloom earlier this winter, which suggests a reduction in spring flowers. The sudden cold weather may cause considerable injury to partially open flower or leaf buds and stem tissues. Injury won't be evident until growing conditions return in spring.

In addition to injury caused by drastic temperature changes, specific plants are injured by minimum low temperatures. Every plant species has a minimum tolerance level. When temperatures drop below that point, injury can occur. This plant quality is called hardiness.

Research indicates that roots are often less tolerant of low temperatures than top growth. When a plant leafs out in the spring and then quickly dies in a few weeks, it's possible that its roots were killed by low temperatures during the previous winter.

Enough moisture reserved in the stem may support bud and leaf formation, but a dead root system is unable to sustain water supply to the new leaves. Researchers also found that root injury may occur at temperatures 10 to 15 degrees warmer than those needed to injure stem and bud tissues.

(Continued from Page D37)  
 efficiency and productivity to new heights.

In the areas of the plant sciences, the report calls for stepped-up research to make crop plants more efficient producers of food through intensified studies of photosynthesis, biological nitrogen fixation, regulation of plant growth and development, gene expression, cell culture and plant regeneration, plant response to stress factors such as drought, salt, cold, heat, and toxic chemicals in soil, among other things.

The average yield for eight major U.S. crops - corn, wheat, soybeans, sorghums, oats, barley, potatoes, and sugar beets - is estimated to be only some 20 percent of the record yield for the same crops, the report points out.

Of the unrealized 80 percent of the potential yield, stressful conditions account for about 70 percent, with the remaining 10 percent attributable to insects and diseases.

As for animal production, the report suggests research to be strengthened to overcome numerous barriers to greater production efficiency.

Among areas of research that should receive greater attention, as the report points out, are molecular basis of disease and metabolic regulation with focus on genes regulating the immune response, pathogens and disease carriers, characterization of hormones and other bodily chemicals, and metabolic control and functioning of cells. Studies dealing with test-tube manipulation of cells and embryos,

addition of genetic materials to embryos, and reproductive efficiency also should be stepped up.

In addition to identifying priority research areas, the report spells out some of the conditions that can provide the optimum research environment in meeting the challenge ahead. These conditions include the availability of funds, quality researchers, suitable facilities, the equipment, and "the presence of an attitude that encourages and supports scientific research of the highest caliber."

"The outcome of the best science is unpredictable, but scientific research at times yields a unifying idea or theory - a key that revolutionizes the understanding of a specific area of science and opens the way to new discoveries and practical applications," the reports state. "This has just happened in biology with molecular genetics."

**Central Michigan Tractor & Parts**  
 2713 N. US 27, St. Johns, MI 48879



Call The Professionals  
 Toll Free: 1-800-248-9263  
 Michigan Res.: 1-800-292-9233

For a savings of 50% off dealers list on good used tractor & combine parts. Now Accepting VISA & Mastercard


**GEO. V. SEIPLE & SON**  
 R.F.D. No. 2, Van Buren Road, Easton, PA 18942  
 Phone 215-759-7141

**BETHLEHEM STEEL...**  
**SULPHATE OF AMMONIA 21% N.**  
 Per Ton, Bulk, F.O.B., Bethlehem, PA '\$67.00'

**ALLIED FIBERS & PLASTICS...**  
**AMMONIA SULFATE 21% N.**  
 Per Ton, Bulk, F.O.B., Hopewell, VA '\$66.00'

Price subject to change without notice

Since 1904



**FARMERS FERTILIZER WORKS, INC.**  
 365 W. Bainbridge St. Elizabethtown, PA 17022  
 (717) 367-1211

HOURS: Mon.-Fri. 7:30 - 4:00

**BAGS OR BULK SERVICE**

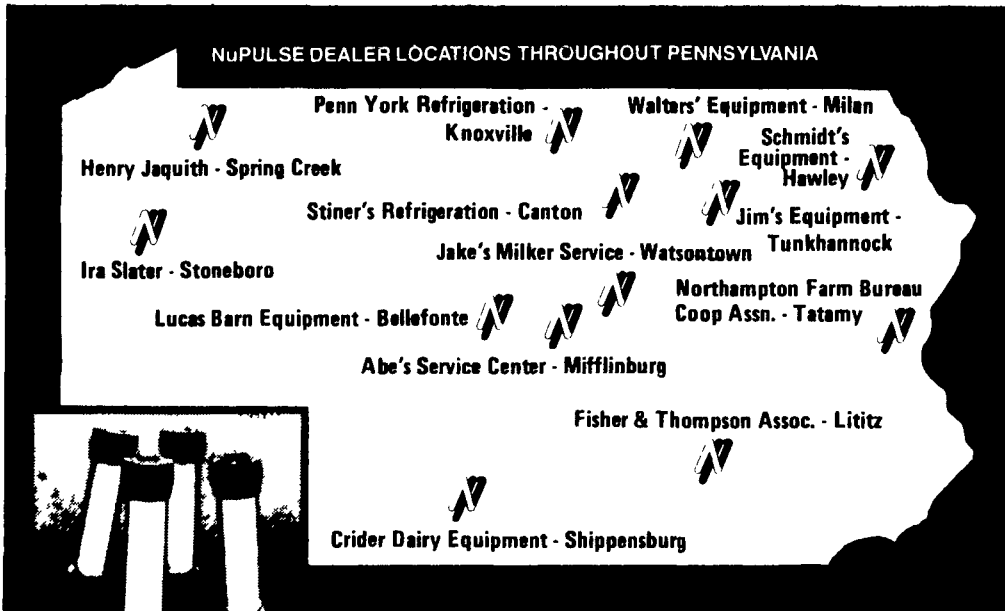
Or Contact One Of The Following Salesmen...

**ROBERT E. GINDER**  
 Elizabethtown, PA 717-367-3520

**LEROY F. SWEIGART**  
 Landisville, PA 717-696-7560

## All of Pennsylvania is Talking About NuPulse Milking Equipment... And Here's What They're Saying\*

**NUPULSE DEALER LOCATIONS THROUGHOUT PENNSYLVANIA**



Henry Jaquith - Spring Creek  
 Stiner's Refrigeration - Canton  
 Ira Slater - Stoneboro  
 Lucas Barn Equipment - Bellefonte  
 Abe's Service Center - Mifflinburg  
 Crider Dairy Equipment - Shippensburg  
 Penn York Refrigeration - Knoxville  
 Walters' Equipment - Milan  
 Schmidt's Equipment - Hawley  
 Jim's Equipment - Tunkhannock  
 Jake's Milker Service - Watsonstown  
 Northampton Farm Bureau Coop Assn. - Tatamy  
 Fisher & Thompson Assoc. - Lititz



Abe Hostetler  
 Abe's Service Center - Mifflinburg  
 (717) 966-1707

Max Crider  
 Crider Dairy Equipment - Shippensburg  
 (717) 532-8517

Amos Fisher & Rick Thompson  
 Fisher & Thompson Assoc. - Lititz  
 (717) 627-1530

**Contact the NuPulse Dealer Nearest You**

Jake Brownsberger  
 Jake's Milker Service - Watsonstown  
 (717) 649-5947

Henry Jaquith  
 Henry Jaquith - Spring Creek  
 (814) 664-2397

Jim Glemboski  
 Jim's Equipment - Tunkhannock  
 (717) 836-3228

Bill Lucas  
 Lucas Barn Equipment - Bellefonte  
 (814) 383-2806

Butch Hill  
 Northampton Farm Bureau Coop Assn. - Tatamy  
 (215) 258-2871

Dave Freeman  
 Penn York Refrigeration - Knoxville  
 (814) 326-4496

Don Schmidt  
 Schmidt's Equipment - Hawley  
 (717) 253-3048

Ira Slater  
 Ira Slater - Stoneboro  
 (412) 253-2870

Jack Stiner  
 Stiner's Refrigeration - Canton  
 (717) 673-8351

Ken Walters  
 Walters' Equipment - Milan  
 (717) 888-9742

**Improved Udder Health**

"NuPulse has helped improve our average from 16,000 lbs. to 21,500 lbs. at 3.6 test in a home bred herd. We've never lost any cows due to mastitis. Our top producer has 29,413 lbs. milk, 992 lbs. fat in 365 days. Our udder health is 95% better with NuPulse than ever before. The NuPulse is simple to maintain with no problems."

Harold W Fabian Bethlehem, PA  
 Using NuPulse since 1978

**Less Cup Fall-Off and Less Mastitis**

"We replaced our old milker with NuPulse MLX. We're not having any fall off problems now. The MLX milks our cows out clean without machine stripping. Udders are more even now. We have not had to buy mastitis medication except to dry treat. We are very happy with NuPulse."

R C Schoemaker Chambersburg PA  
 48 cows, NuPulse MLX since January 1984  
 herd average 17,000 milk 650 fat

**Faster Milking**

"We replaced DV300's with NuPulse. I have not had any fall off since. Our cows accepted NuPulse easily. Milking alone I get 1,000 lbs. per hour with 4 units"

Philip L Hege Shippensburg PA

**Ease of Maintenance**

"Our cows udder health is the best ever. The only mastitis we have is when a cow gets injured. We do our own maintenance. We have been very pleased with NuPulse."

Roe Russell, Rome PA  
 NuPulse since 1979  
 130 cows, herd average 17,000 milk 710 fat

**"You can spend more money, but you can't get a better milker."**

Donald G Heller Canton PA  
 60 cows herd average 17,800 milk 613 fat



908 Stewart Street, Madison, WI 53713 • 608/274-2722

\*Signed statements on file