

Plant movement dictates proper care

LANCASTER — Living plants have many ways of moving their leaves, stems, and flowers. The "how" and "when" of plant movements were described recently by John W. Mastalerz, professor of floriculture at The Pennsylvania State University.

Such plant motion generally is detected by extremely close observation or with time-lapse photography, Dr. Mastalerz said. Stems bend toward light, leaves face the sun, flowers close up at night, stems cling to various surfaces, and some plants catch insects or reach to touch.

He indicated the two basic movements are first, those caused by uneven growth of cells in a stem

and second, movements resulting from changes in water pressure or turgidity of plant cells.

The first type of uneven growth occurs when plants move toward or away from a stimulus. This is known as tropism. The movement can be response to light (phototropism); response to gravity (geotropism); or response to touch (thigmotropism).

"Stems and tendrils of climbing plants are highly sensitive to touch," Dr. Mastalerz stated. "Following a single contact, tendrils have been seen to start twining within 30 seconds. The contact must be done by rubbing against an uneven surface," he said.

Response to light (phototropism) occurs when the stems of a nasturtium leaf bends or twists to place its leaf blades at right angles to the sun. Peanut plants start with flower stalks growing vertically upward until pollination takes place and seed is set. Then peanuts grow downward. Finally, peanut plants end their growth cycle in response to gravity (geotropism) when they bury their fruit pods in soil.

Pollution of the air by ethylene causes a reaction called nastic — the downward curving or wilt of tomato leaf stalks. Under ethylene pollution, tomato leaves will even when soil moisture is adequate. Ethylene pollution comes from automobile exhaust gases, burning trash, or cigarette smoke.

A third type of uneven growth movement is known as circumnutation, best seen by time-lapse photography. Young stems move constantly in a spiral pattern as if searching for something to touch. Climbing plants find this a very useful characteristic as it improves the chances of touching something solid.

The Penn State scientist believes the most interesting movements in plants are those created by changes in water pressure within cells, a condition called turgidity.

Turgor pressure develops when water moves into a cell, fills it to capacity, and exerts pressure on cell walls. When water is withdrawn from the cells, pressure

against the cell walls decreases and the cell shrinks.

Undoubtedly the most familiar turgor reactions of plants are created by touching leaves of the Venus fly trap or the sensitive plant. When an insect settles on a leaf of the Venus fly trap and touches a trigger hair, the halves of the leaf blade fold together quickly — trapping the victim. After digestion, the trap reopens.

People enjoy touching the leaves of a sensitive plant, Dr. Mastalerz noted. When an individual leaflet is touched, that leaf folds rapidly. Additional touching will cause more leaflets to fold. Severe contact will set up a chain reaction and the entire plant will collapse. Such plants have a specialized

structure known as the pulvinus. Rapid movement of water out of each pulvinus at the base of each leaflet and steam causes the folding reaction.

As another example of turgidity, he listed the "sleep" movement in bean leaves and leaves of other legumes. These plants also have many pulvinus structures. Changes in turgor pressure within the cells of the pulvinus cause leaflets to fold together, with the entire leaf dropping.

Such "sleep" movement in beans and other legumes is regulated by light and darkness, it was explained. Some evidence indicates that an internal biological rhythm is also involved in this movement.

Ida's Notebook

Ida Risser



Lately I've been doing a lot of reading about covered bridges or "kissing bridges" as they are sometimes called. I was pleased to learn that, in January, twenty-seven of them in Lancaster County were placed on the national Register of Historic Places.

Our ancestors had problems crossing many small streams and several large rivers in Pennsylvania. Sometimes trees were felled and then bound together or else stones were piled in a stream to help the traveler on his way.

There were no craftsmen available in those early days to build stone bridges. Ferries were one answer, but they were slow.

Seldom do we hear of a covered bridge's construction without the mention of Theodore Burr's name. He was born in Connecticut in 1771 and developed an arch-supported truss carrying a level roadway that he patented in 1804.

He built several spans across the Susquehanna River, although he had financial difficulties due to the large payroll which he had to meet.

He built the famous "Camelback" bridge at Harrisburg in 1820. Many of these covered bridges were destroyed by ice jams, and some succumbed to fire or flood.

Many covered bridges have been replaced by concrete structures which can carry heavier loads. One bridge, near my home that was built in 1843 at a cost of \$2389, was one of these.

Another nearby bridge, that was destroyed by Hurricane Agnes in 1972 was restored at a cost of \$321,300, comparable to the price of a modern span. The original was made of eastern white pine but the present one has Douglas fir with an oak floor, cedar shake roof and redwood sides. The purpose of the roof is to cover and protect the superstructure from the weather.

In 1771 the first bridge in Lancaster City was built "to cross water that flowed over King Street."

Today we travel everywhere without a thought of the magnificent bridges that connect our highways from coast to coast.

Microwave oven classes scheduled

YORK — If you use your microwave oven for just thawing and reheating leftovers, you are not using it to its fullest potential.

The York County Cooperative Extension Service is offering a class "More Cooking With Microwaves" on May 27 and June 3, 10:00 a.m. - noon or 7:00 p.m. - 9:00 p.m. at the Pleasant Acres Meeting Room, 112 Pleasant Acres Road, York.

The evening class is a repeat of the day class. At the first class you will be shown how to do casseroles and sauces, and the second class covers how to do complete meal preparation with your oven.

The fee for each class is \$2.50. Advance registration is required. You can register by calling the York County Extension Office at 112 Pleasant Acres Road, PA 17402 at 757-9657.


BUCK TRACTOR PULLS
EVERY SATURDAY NIGHT AT 7 P.M.
Featuring...
8 Classes of Super Stock and Modified Tractors and 4-Wheel Drive Trucks



REGULAR ADMISSION
Adults - \$4.75
6 to 12 yrs. - \$1.50
5 and under - FREE
Loc: 10 Miles south of Lancaster on Rt. 272
Does not include special events.
SEE YOU AT THE BUCK!

If you have fat cattle or need feeders...
THINK NEW HOLLAND
BEEF SALES
MONDAY — 1:30 P.M.
THURSDAY - 11:00 A.M.
Sale Order - Fat Bulls, Steers, Stockers and Beef Cows
Veal Calves - 4:30 Thurs.
NEW HOLLAND SALES STABLES, INC.
Phone: 717-354-4341
Daily Market Report - Phone 717-354-7288
Abe Diffenbach, Manager
Field Representatives
Alan Diffenbach 717-656-9806
Luke Eberly 215-267-6608

M.H. EBY, INC.
Manufacturer of All Aluminum Truck Bodies
Livestock, Grain & Bulk Feed



Aluminum Livestock Body

Distributor of **TIMPT** Refrigerated Trailers
Sales & Service
Blue Ball, Pa. 717-354-4971

POWER KING
one tough tractor!



Breeze thru your work! Power King's all-gear drive delivers nearly 100% of horsepower to the wheels. Available with 12, 14, 16 and 18 hp engine, and up to 19" cultivating clearance. Handles 4' and 5' mowers, 12" plow, 32" tiller, 42" and 48" snowblowers, 4' dozer, 1/3-ton loader, 6' backhoe, log splitter, other attachments. American built since 1946. Get our down-to-earth price.

Mows up to 3 acres per hour

FREE 48" Mower Deck With Purchase

Good's Lawn & Garden Center
Rt. 322 1 mile East of Blue Ball
phone 717-354-0076
Open daily 9 to 9 Tues & Sat 9-5