

O. A. Thompson, Superintendent of the Edgeley Substation, resigned to manage his own farm interests. William Johnson, part time Soil Scientist, on leave to enter United States Naval Reserve.

A. S. Severson, Assistant Animal Husbandman, resigned to go into a field of private endeavor.

W. C. Whitman, Assistant Botanist, on leave to enter United States Army Ordnance.

W. L. Ettesvold, Assistant Agricul-

tural Economist, on leave with the U.S. Army.

C. F. Bortfield, part-time Assistant Agricultural Economist, on leave with the United States Navy.

H. S. Telford, Associate Entomologist, resigned, effective May 1, 1944, to accept a commercial research position with a manufacturer of insecticides, etc., Hess & Clark, Inc., at Ashland, Ohio.

H. L. WALSTER,  
Director.

## North Dakota Plants Related to Flax, Mallow and Geranium

O. A. STEVENS, Associate Botanist

**I**N this general group we have a few plants of several families. Some of them are common and well known. One of the best known as the False Mallow or Red Mallow (*Malvastrum coccineum* or *Sphaeralcea coccinea*). This is often called "wild geranium." The tuft of red flowers at the top of the plant and the leaves, divided into narrow lobes like the fingers of a hand are indeed suggestive of geranium. It is one of our popular wild flowers, blooming in late June and early July. It occurs all over the State but is more common westward. It grows on poor soils such as clay roadsides, and high, short grass prairies. Usually it is only 6 or 8 inches high, but is perennial and often forms patches which glow with color in the height of the flowering season.

Mallow flowers are more open and cup-shaped than those of geraniums. The special character by which they are recognized is that they have a large number of stamens, the lower parts of which are grown together, forming a tube around the style of the pistil. Our common Mallow (*Malva rotundifolia*) is a garden and dooryard weed with rounded leaves and nearly white flowers scarcely more than one-fourth inch wide. It grows luxuriantly in rich soil and continually attracts attention by the way it continues to grow after the early fall frosts. It is an annual and is easily destroyed except that it is a prolific seed producer and commonly grows in yards and along edges of roads and walks which are not easily kept clear of weeds. The fruiting part splits at maturity into about 10 segments, on account of

which the plant has long been known as "cheeses." The young fruits are mucilaginous and pleasant to the taste.



Figure 1. Mallow (*Malva rotundifolia*). Leaf and flower clusters.

Two other, quite similar species of mallow, are sometimes seen as weeds and Curled Mallow (*Malva crispa*), which grows as much as 6 feet high, occasionally appears in gardens. Another member of the family is Flower-of-an-hour (*Hibiscus trionum*), an infrequent annual weed. Its showy flowers are an inch across, pale yellow with dark purple centers. Shrubby species of *Hibiscus* with large flowers are much grown in warmer regions. The three plants above described are our principal representatives of the family.

The commonest geranium grown as an ornamental is *Pelargonium*, differing slightly in technical features from *Geranium*. We do have *Geranium carolinianum* as a native plant. It is an annual weed found chiefly in wooded areas in openings and clearings. In appearance, it much resembles the rose geranium which is often grown as a house plant. The stamens of geranium flowers are separate. The pistil has a stout central column, which splits into five parts at maturity. Each part contains a single seed in the enlarged base which splits first and curls upward. In the cultivated *Pelargoniums* the structure is the same except that petals are increased in number and stamens may be missing

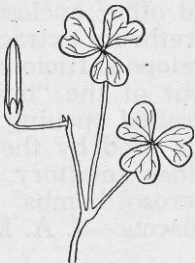


Figure 2. Woodsorrell (*Oxalis stricta*). Leaves and seed pod.

Woodsorrels are quite closely related to geraniums. The name was first used for a species of Europe which grew in woods. Ours are weedy but scarcely troublesome. One of the yellow-flowered species

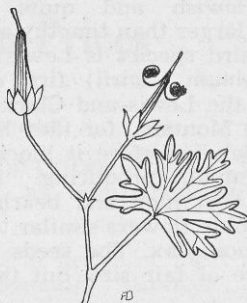


Figure 3. Wild Geranium (*Geranium carolinianum*). Leaf, one fruit before and one after splitting apart.

(*Oxalis stricta*) sometimes grows a foot high in shady places, but more often we see it as a low, tufted plant in the open. The Pink or Violet Woodsorrel (*Oxalis violacea*) on the prairie has a brown scaly bulb from which come leaf and flower stalks.

Woodsorrels are easily recognized by the leaf, which is composed of three leaflets much as in a clover, but the leaflets are "obcordate," that is, inverted heart-shaped, attached at the pointed end. The plants, especially *O. violacea*, have a sharp taste due to oxalic acid which takes its name from the plant. The word *Oxalis* dates from ancient Greek writings. Some African species are grown as house plants. Our yellow *O. stricta* has an interesting feature in that the seeds are thrown as much as 10 or 15 feet from the ripe pods by the bursting of the outer coat of the seed.

The flax family is closely related to woodsorrels, but the leaves are narrow, not divided. There are nearly 100 species of flax of which two or three have been cultivated, but only one for the most part. Three are native to North Dakota and were used to some extent by the Indians. The commonest one is Yellow Wild Flax (*Linum rigidum*), a prairie annual with yellow flowers about three-fourths inches wide. A second yellow flowered species (*L. sulcatum*) has smaller flowers, more slender stems and grows from eastern North Dakota southward and eastward. The seeds of these two

are yellowish and quite small, scarcely larger than timothy seeds.

The third species is Lewis's Wild Flax (*Linum lewisii*) first discovered by the Lewis and Clark Expedition in Montana, for they had left North Dakota before it bloomed. It is perennial, producing slender stems 2 feet high and bearing numerous blue flowers similar to those of common flax. The seeds of this plant are of fair size, but thin and

dark colored. It has attracted considerable attention because it is a hardy perennial of good height, but attempts to cross it with common flax have met with little success. The wild flaxes resemble the field plant in that the flowers fall off about noon. They shed their seeds readily for this is a character of most wild plants which must be overcome in producing a successful field type.

## New Insecticides

DDT is the name given to a new insecticide instead of its difficult name Dichloro-diphenyl-trichloroethane. DDT is proving so useful for insect control by the military services that it will probably be some time before it is available for domestic use. Reports on its effectiveness indicate that when this insecticide is sprayed on walls or other surfaces it leaves a toxic residue which kills flies and numerous other insects which alight on these surfaces. From the standpoint of its contact effect upon insects, it has the longest residual effect of any insecticide as yet known. It appears to be harmless to humans and other warm-blooded animals, and it is believed that when it becomes readily available to the public it will aid in better control of many insects which are otherwise difficult to control. For outdoor use, it is possible that this insecticide will have to be used in a restricted manner so as not to endanger honeybees and other beneficial insects.—J. A. Munro.

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A new method, known as the "aerosol bomb," has recently been developed by the U. S. Bureau of Entomology and Plant Quarantine for applying a pyrethrum insecticide in the control of mosquitoes and other insect pests in buildings and other enclosures. The container holds a few fluid ounces of the pyrethrum extract in combination with freon, a substance which develops sufficient internal pressure to gradually force the mixture out of the "bomb" in a fog-like manner through a small valve-controlled opening. At present the entire output of "aerosol bombs" is used by the military services in mosquito and other vermin ridden territory, but it is expected that after the war is over that "aerosol bombs" will have extensive use in the control of household insects.—J. A. Munro.

**How well will vegetables keep in a heated basement, provided they are stored in an insulated vegetable keeper?**

W. J. Promersberger of the Department of Agricultural Engineering has designed a vegetable keeper. See Special Circular A-60, Extension Service, published in Septem-

ber, 1943. This vegetable keeper was installed in a heated basement in a residence. Vegetables placed in one of these units late in September, were not sufficiently cooled for good storage conditions. Carrots placed in a unit during the week of October 25 are still in good condition. (March 1944).