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Cry Alarm . . . Killer Loose . . .

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PANDORA'S BOX

ATTRACTIVE as it appears, cattle ranching may sometimes be likened to gambling against a stacked deck. Uncertain markets plague the budget; the inevitable and dreaded drought, ever lurking around the corner, brings set-backs, death losses, extra feed, labor costs, and many other extraordinary burdens. On the other hand, when welcome rain does finally come and the hills and valleys take on that beautiful green color, elation is tempered by knowing that "tares must grow with the wheat," specifically, poisonous weeds. At any time, the lovely green expanse is likely to be seen flecked with the bloated bodies of dead cattle. This is a sight calculated to take the joy out of life. An ironical twist of this play from the stacked deck lies in the calamity stemming from a totally unexpected source. It can and often does happen; an analogy is the death-dealing plague of 1918. A virulent form of a disease thought to be relatively harmless, the terrible "flu" epidemic swept the world, claiming more victims than the world war just preceding. So too in the plant kingdom a variety of subjects, usually weeds ordinarily harmless, grazed and relished by livestock as good forage, will suddenly turn traitor. Chemical changes occurring under climatic or other conditions affecting plant growth, can transform these weeds overnight into deadly killers.

Another deal from the stacked deck; the plant known to be toxic but by its infrequent and scattered occurrence presents no immediate threat. Comes a severe drought or some other disturbing factor, the inhibitor is removed. The erstwhile harmless plant then burgeons into dense colonies, its very abundance enhancing the hazard a thousandfold. It is then taken in lethal quantities by cattle; result, severe losses by a "new" killer plant.

Death Losses (Pre-drought)

Death losses of cattle from all causes, especially from poisonous plants, have been a subject of considerable concern and study on the Jornada Experimental Range in southern New Mexico. This project is one of the important phases of livestock and range management. The long-time rate of death losses has, until recent years, been held at a very satisfactory level. Before the onset of the drought in 1951, a 26-year average showed a death loss of only 1.6 percent from all causes: drought, disease, injury, calving, lightning, and poison plants. Of these losses, those charged to toxic plants, only about 2 percent of the total loss, had not been disproportionate. In the late "twenties," inkweed (**Drymaria pachyphylla** Woot. & Standl) was identified as the culprit in some rather heavy losses, most of which occurred in 1929. Fenced segregation of heavily infested areas, aided by some hand grubbing, moving cattle, and other measures soon brought the situation under control. Closely watched in ensuing years, inkweed was held to be "public enemy No. 1" for the Jornada Range and other typical semidesert areas of the Southwest. Scant attention was paid to other plants known to be poisonous but present in negligible quantities.

Death Losses (Post-drought)

In 1951 the worst southwestern drought in 300 years, according to tree ring studies, struck the Jornada and most other typical semidesert ranges. Throughout its more than 6 years' duration, poison plants posed no problem. These were nonexistent along with many others. With rainfall half or even less than half the average, the chief problem was to maintain any sort of herd on the range. As it turned out, the experimental herd on the Jornada finally dwindled to less than a hundred head. Even these had to be fed a great deal of the time.

After the 1951 through mid-1957 drought, restocking of the range began in 1958. New cattle were moved in to rebuild the depleted herd. These were secured by purchase from all parts of the Southwest. Death losses began to appear in this herd very soon thereafter but they were at first attributed to various causes, mostly to adjustment of cattle unaccustomed to this range area. With a total loss of 10 head in 1958, only 4 deaths were charged to poison plants, inkweed of course being blamed. Significantly, under the heading "Other Causes" some losses were entered as "unknown." About the same situation obtained in 1959 and in 1960. In 1961 the total death loss climbed to 23 head, an alarming 4.3 percent, an increase of 168.7 percent over the 1.6 percent long-time 26-year average already mentioned. Of the total cattle lost in 1961, 19 head were charged to poison weeds.

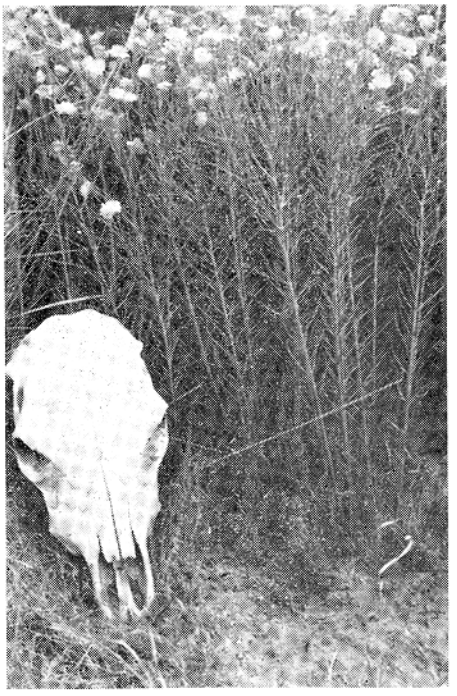
Both 1961 and 1962 were excellent forage years, rainfall being much above the average. The rare pleasure brought by these two successive good years was overshadowed considerably by more heavy death losses, 41 head of cattle dead in 1962, 38 of which were attributed to poison weeds. This annual loss percentage running four and a half times the long-time pre-drought average made the situation look serious indeed.

Killer Plant Identified

Alerted by the heavy losses of 1961 and of 1962 both cattle and range were watched closely. These losses, 83 percent in 1961 and 92 percent in 1962, were definitely established as being caused by some kind of toxic plant. Late in 1961, 2 heifers, having convulsions and dying were found together. These were closely observed for other symptoms and after death were "posted" by Jon Norris of New Mexico State University. Examination of stomach contents as well as observation of symptoms before death identified the killer beyond the shadow of doubt; whorled milkweed (**Asceplias subverticillata** (Gray) Vail). A stand of this plant was found nearby in the same pasture. The weed, a specimen of which had long been in the Jornada herbarium and recognized as noxious, had, because of its infrequency heretofore, presented no threat. The 2 successive good rainfall years, 1961 and 1962, triggered a "population explosion" of the now dangerous whorled milkweed. Whole colonies, with dense growth in comparatively small areas, began to show up all over the summer range area of the Jornada where all the cattle were being pastured at the time.

Control Measures

Immediately after identification of the killer plant in 1961, steps were taken and work begun in earnest to get the upper hand of the outlaw. Simultaneously and as a precautionary measure, cattle were shifted from the summer range area to pastures known to be free from infestation. However, in 1961, not much more than a start in control was made due to late discovery of the source of trouble. Work on control was pushed vigorously all through 1962 and 1963. As already indicated, in spite of continuing war against the weed, losses were extremely heavy in 1962, because of inability on short notice to locate and treat all the widely scattered infested areas. Then too, favorable growing conditions existing most



Western Whorled Milkweed. Scaled by relic of a victim, both height and potency of **Asceplias subverticillata** are portrayed.

of the year, milkweed was very much on the scene.

The spraying solution used on whorled milkweed is made up in the following proportions: diesel oil, 20 gallons; herbicide (2,4,5-T ester), 6.8 pounds; water, 300 gallons. The individual plants are sprayed to the point of drip. Using a power spray mounted on a light trailer it was possible to spray several scattered colonies in a single day. Most of the time was taken up by travel from one area to another. The first spraying of the whorled milkweed in late 1961 was continued throughout 1962. While it did not kill all the plants in the colonies, nevertheless top-kill was sufficient to thin out the stands so that the hazard was almost completely eliminated by 1963. Proof of this is the fact that, in 1963 with the same number of cattle on the range as in 1962, death losses from this source were cut from the 38 in 1962 to 1 death, certain, and one suspected. Growth conditions in 1963 were favorable except in a large area in the north part of the range. However, the weed was found on this and all other areas previously treated. The whorled milkweed, although in lesser quantities, appeared early in the spring as in the 2 preceding years.

For control of whorled milkweed, it appears that repeated spraying with the approved herbicides is necessary at approximately monthly intervals during the season of growth. The idea is to get the stands thinned out as quickly as possible. Then as general range conditions gradually improve, it is believed, the plant will be held in check even though total kill is not immediately achieved by spraying.

Description of Whorled Milkweed

The plant, illustrated in this article, grows to a maximum height of 33 inches, is dark lustrous green, and has clusters of small white flowers. The telltale, white viscous fluid from a broken or crushed stem will identify it as a milkweed but not necessarily this killer species. Specimens of collected species should be submitted to the New Mexico State University or county agent for identification. The weed is a perennial with rhizomes or underground root stocks which make it a hard customer to deal with.

Symptoms of whorled milkweed poisoning, listed in Farmer's Bulletin, No. 2106, U.S. Department of Agriculture, are as follows: Loss of muscular control; staggering and falling; violent spasms; bloating; rapid and weak pulse; difficulty in breathing; respiratory paralysis. These are identical to symptoms of whorled milkweed poisoning observed here on the Jornada Range.

Whorled Milkweed Habitat

On the Jornada, the weed prefers the same swale type on which is found the Jornada's principal summer forage, tobosa grass. These areas with heavy clay soils are subject to flooding; therefore the extra soil moisture brings a crop of both weeds and grasses in very short order. The plant, however, is not confined to this range type. It has been observed frequently the past 2 years growing in great profusion on rights-of-way along highways covering practically all of southern and central New Mexico. The weed is found at widely varying elevations, rainfall and temperature zones, and on different soil types. It is understood, of course, that the extra run-off from the pavement coupled with protection from grazing on the rights-of-way, provides exceptionally favorable sites for growth.

Nevertheless, colonies of the plant are very likely to be found on adjoining ranges traversed by the roads. Believed to be an aftermath of the catastrophic drought of the early fifties, the current resurgence of this dangerous plant presents a very real and widespread threat to the cattle industry of the New Mexico ranges. It should therefore be attacked with vigor and dispatch whenever and wherever found. Watch it!