

SPECIAL EQUIPMENT IN THE  
BOX ELDER COUNTY MOSQUITO AND FLY  
ABATEMENT DISTRICT

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The Box Elder County Mosquito and Fly Abatement District consists of the perimeter of Box Elder County and contains 5600 square miles with an assessed valuation of \$64 million. At a maximum taxing ability of one mill levy it is impossible to receive enough money to control an area of this size.

In 1947, a group of women from the two Home and Community section units in the county met with our board and requested a spray program around residential areas in the county. There is a large dairy and fruit industry as well as other industries in Box Elder County. The fly condition is terrific in this area and they had heard of



FIG. 1.—Ditch made by equipment described in text.

a "new" insecticide called DDT that wafted a magical control wand over the fly kingdom! The board accepted this new assignment along with the mosquito control in the district, and instructed the newly appointed manager to start this activity.

In our district we have the largest Federal game bird reserve in the world. We have two-thirds of Great Salt Lake in our district, two rivers, each running 50 miles through our district, the largest area of irrigated farms in the state and 40 or 50 private duck clubs. We are attempting to control mosquitos only in the more populated areas, these covering approximately 2500 square miles.

We have many vast sub-marginal areas of natural wild grass pasture surrounding the lake and river areas, and this problem prompted our research, and the development of a vehicle that could make ditches to control the water in these areas.

In the fall of 1963 I talked with my son Paul, who worked with Thiokol, Logan division, as a designer of off highway snow vehicles. We talked of a tractor that might pull a plow or ditcher in our soft, muddy sub-marginal areas. Paul told me the Spryte should do the job. We arranged for a demonstration. The date was set and I borrowed a new International ditcher from Brigham Implement. This ditcher had no hydraulic equipment on it and was adjusted only by hand crank. We towed the ditcher by Jeep to the field designated and met Paul there with the Spryte. We had some Board members present and some of our employees there also. We hitched the ditcher to the Spryte and got set. The field was north of Brigham, part of a large meadow area that is always too wet to farm. We decided to follow an old drain that was all filled up from years of tromping by cattle and other livestock. The ground in this area oozed water as we walked on it, with a fair sod of salt grass. We started out and were really surprised, with a beautiful ditch 18" deep and 36" wide. (Fig. 1) As we proceeded at about five m.p.h., the ditcher went deeper and deeper; the Spryte stopped. We backed the Spryte and ditcher out, readjusted the ditcher and went on. We soon got into standing water, then went on until the water was over a foot deep on top of the ground! We still went on making the ditch to the place we wanted to stop. This was more than a half a mile of ditch in less than an hour, and in an area that, as one board member put it, "would mire a saddle blanket." It was a thrill to have put something together that would do so much good in areas that were so neglected.

During 1964, we made a survey of all sub-marginal areas by taking a cross section of property in each area needing this service. We then made maps of these areas and figured approximate lengths and depths of ditches needed to serve the areas. We found out from a local contractor what his price would be to dig these drains. The lowest price for a backhoe was \$20,000.00!

To the property owners under our survey, we sent a letter explaining the object of the survey and on a separate sheet a questionnaire, to be answered and returned in a self addressed, postage paid envelope. On this we asked, "Would you consider paying all, part, or none of the cost for the drains we suggest, also what kind of equipment to dig the ditch, ditcher or backhoe?" More than half of the returned sheets said they would bear part of the cost and only three said "No drain construction."

This information was presented to the Board during the winter of 1964-65 and after much consideration and discussion I was directed to purchase the equipment to start a "water management program." Meantime I had met with Blaine Rich, head of Thiokol, Logan Division. We discussed our problem and he came up with a Spryte which had been taken in on a trade for a larger type snow vehicle. This unit had seven hours use on it. We purchased this unit with a low gear on it for \$5,617.00, then a new International ditcher for \$398.00 and a trailer to haul the Spryte for \$150.00; total \$6,165.00!

We figured we could make these drains for \$10.00 per hour, paying all costs, that is, labor for contracting for the water control and for the actual field work and pro-rating the equipment cost over a ten-year period. After the first year this was raised to \$15.00 per hour with the property owner paying half the cost and the District paying the other half. In most areas we can average a mile of ditch per hour. Some areas are slower depending on how wet they are and on the type of growth. In sod we go well, whether it is wet or damp, but in tulles and bayonet grass of extremely wet areas it takes longer. We very seldom find the area "too wet"; but it has been in a few cases.

We have one man go out and check as the requests come in. Each owner is approached, his area checked and mapped, then the location put in and agreed upon by both. The papers are signed by the owner; one paper guarantees the cost and another releases us from damages resulting from our work. After this, the ditches are actually dug. So far, we have been busy just taking care of the calls as they come in. We haven't been out contacting any owners this year. The neighbors adjacent to the areas where we have provided this service seem to want it performed for them while we are there.

We mounted a spray boom and sprayer on the rear of the Spryte (Fig. 2) and powered it with a small Briggs & Stratton engine. The boom is a foldaway type and we found we could spray up to one-half acre per minute with this equipment. It covers a 50-foot swath and we use this in areas up to 50 acres in size that cannot be sprayed by Jeep. We also have a hand nozzle and hose we use for spot spraying.

We feel this project is very successful, as shown by the reduction of sources of mosquito breeding areas, as well as in better farming methods. We



FIG. 2.—Spraying equipment installation on vehicle.

have seen pastures that had too much water on one part and none on the other part raise a poor crop of "meadow hay" on part of it. After this was ditched, the "too wet" area and the "too dry" area all raised a good crop of hay by water management. We have seen wet areas dried up, so that a larger, more permanent drain could be dug by a backhoe. We have seen areas drain out after flooding whether caused by rain or over irrigation.

We are not giving competition to any contractor

as none of them has the equipment to go into these wet sub-marginal areas and make ditches.

We have had to make some changes on our Spryte during the process of making these ditches. One of these is stronger belts for the track; another, replacing the rear 1500# axle with a new 3,000# axle; and some other minor changes. Thikokol worked with us on this all the way through, giving us very fine backing and cooperation. They also made movies of several of our operations.