

The background features abstract, overlapping green geometric shapes in various shades of lime and forest green, creating a modern, layered effect. The shapes are primarily located on the left and right sides of the frame, framing the central text.

REMOVING INVASIVE PLANTS UTILIZING LIVESTOCK

A FARMER-RANCHER PROJECT FUNDED BY A SARE GRANT

NANCY LUNZER

THE GOALS OF THE PROJECT



REMOVE BUCKTHORN, PRICKLY ASH AND REED CANARY GRASS WITHOUT CHEMICALS



ALLOW HOGS TO USE THEIR NATURAL ROOTING ABILITY TO IMPROVE THE WOODLAND



REMOVE PRICKLY ASH THICKETS IN PASTURES



CONTROL REED CANARY GRASS ON RIVER BANKS USING HORSES AND SHEEP



PREVENT EROSION INTO SENSITIVE WETLANDS





PRESERVE AS
MANY TREES
AND NATIVE
SPECIES AS
POSSIBLE

PRESERVE AREAS FOR MILKWEED AND MONARCH BUTTERFLY CATERPILLARS



CONTROL RE-GROWTH WITHOUT CHEMICALS



IMPROVE PASTURE FORAGE AND RAISE QUALITY LAMB AND PORK



AVOID COSTS, LABOR AND POLLUTION USING CONVENTIONAL METHODS OF CONTROL



RETURN THE AREA TO NATIVE
PLANT AND TREE SPECIES.



WHAT A HOG CAN DO THAT MACHINERY CAN'T



HOGS CAN REMOVE BRUSH FROM BETWEEN LARGE TREES AND ROCKS



HOGS CAN TURN THE TOPSOIL WITHOUT COMPACTION



HOGS CAN DIG UNDER THE ROOT BALL AND PULL UP THE PLANT



HOGS CAN BREAK UP DEBRIS INTO LITTLE PIECES



HOGS CAN GLEAN 40 PERCENT OF THEIR DIET FROM FORAGING



THE BEST METHODS FOR TARGETING BUCKTHORN



FIRST: TRAIN THE HOGS TO JUMP BACK
WHEN THEY TOUCH A FENCE BY PUTTING A
HOT ELECTRIC WIRE INSIDE A PERMANENT
FENCE.



USE PORTABLE SHELTERS, FEEDERS AND WATER



USE PIG-QUIK ELECTRO-WEB FENCING FROM PREMIER



PIG-QUIK FENCE FROM PREMIER 1

- ▶ PIG QUIK ELECTROWEB FENCING AND A ZAREBA BATTERY FENCER MOUNTED ON ITS OWN GROUND ROD WORKED BEST FOR HOGS
- ▶ IT IS EASY TO INSTALL WITH ONE PERSON
- ▶ IT IS SHORT ENOUGH TO STEP OVER TO ACCESS HOG YARDS FOR FEEDING ETC.
- ▶ CAN FENCE ANY SHAPED AREA
- ▶ IT IS LIGHTWEIGHT, EASY TO REPAIR AND EFFECTIVELY CONTAINS THE HOGS
- ▶ A 12 VOLT SOLAR PANEL CHARGED A DEEP-CYCLE MARINE BATTERY FOR REMOTE LOCATIONS FOR SHEEP

ALLOW ENOUGH TIME TO DIG UP, EAT OR
TRAMPLE THE VEGETATION



PLACE FEED TROUGHS IN BUCKTHORN THICKETS FOR MORE TRAMPLING



USE LARGER HOGS ON AREAS WITH LARGER BUCKTHORN



BETTER RESULTS USING HOGS

- ▶ TO PREVENT ODORS, PARASITE AND FLY PROBLEMS, FENCE SMALL AREAS THAT CAN BE HOGGED OFF IN ABOUT A WEEK
- ▶ MOVE HOGS OFF GRAZED OFF AREAS COMPLETELY
- ▶ THE AMOUNT OF AREA THE HOGS COULD TARGET DEPENDED ON TEMPERATURE, MOISTURE IN THE SOIL, SIZE AND NUMBER OF HOGS AND SIZE OF THE PLANTS
- ▶ RE-GRAZE HEAVILY INFESTED AREAS TO GET BETTER REMOVAL

LIMITATIONS OF BUCKTHORN REMOVAL USING HOGS

- ▶ HOGS WON'T DIG IN DUNGING AREAS
- ▶ HOGS ARE LESS ACTIVE DURING HOT WEATHER
- ▶ HOGS DIG LESS WHEN SOIL IS DRY
- ▶ HOGS CHOOSE THE EASIEST AREAS TO DIG AND AVOID HARD TO DIG AREAS
- ▶ HOGS WON'T DIG NEAR ELECTRIC FENCE
- ▶ HOGS MAY GROUND ELECTRIC FENCE BY PUSHING DIRT PILES INTO IT.

THE PULLER BEAR WEED WRENCH WORKED WELL TO PULL PLANTS THE HOGS MISSED



HOGS BREAK UP THE BRUSH AND DEBRIS



BROADCAST GRASS SEED DIRECTLY ON TO HOG-TILLED SOIL



USE OLD BEDDING AS MULCH OVER BROADCASTED SEEDS



USE SHADE TOLERANT GRASS SEED UNDER FOREST CANOPY

► SHADE SEED MIX:

-FINE FESCUES -

 CREEPING, HARD AND CHEWINGS VARIETIES

-KENTUCKY BLUE GRASS -

 LIMOUSINE AND BARON VARIETIES.

IF THE SUMMER AND FALL ARE TOO DRY,
WAIT AND FROST SEED IN THE SPRING



BROADCAST GRASS SEED ONTO SNOWPACK IN MARCH



ALLOW FROST SEEDED AREAS TO GROW UNTIL FALL BEFORE GRAZING



SHADY AREAS CAN ONLY BE GRAZED
ONCE A YEAR DUE TO LIMITED GROWTH



THE AREA IN THE FOREGROUND WAS HOGGED
OFF AND SEEDED TO SHADE GRASS



AFTER NATIVE SPECIES DROP THEIR LEAVES,
THE BUCKTHORN IS EASY TO SEE



PART TWO: TARGETING UNWANTED PLANTS USING SHEEP



SHEEP PREVENT BUCKTHORN SEEDLINGS FROM GETTING RE- ESTABLISHED.



HAIR SHEEP WERE CHOSEN BECAUSE THEY
PREFER TO BROWSE ON BRUSHY PLANTS



HAIR SHEEP DON'T REQUIRE SHEARING, DE-
HORNING OR TAIL DOCKING.



HAIR SHEEP ARE SOMEWHAT RESISTENT TO INTERNAL AND EXTERNAL PARASITES



HAIR SHEEP THRIVE ON BUCKTHORN AND MOST LEAFY PLANTS



BUCKTHORN MUST BE CUT SO SHEEP CAN REACH IT



INTENSIVE TARGETED GRAZING REMOVES ALL THE VEGETATION SHEEP CAN REACH



ONCE VEGETATION IS REMOVED, IT IS
ALLOWED TO LEAF-OUT, THEN RE-GRAZED



FREQUENT RE-GRAZING WAS AN EFFECTIVE WAY TO KILL BUCKTHORN



CUTTING THE STEM AT 2-3 FEET TALL
WAS MORE EFFECTIVE AT KILLING IT



BENDING AND BREAKING THE STEM AT 2-3 FEET TALL AND GRAZING OFF LEAVES WAS THE MOST EFFECTIVE AT KILLING IT



CUTTING THE STEMS SHORT AND GRAZING WAS NOT AS EFFECTIVE



SHEEP ARE SELECTIVE GRAZERS AND DID NOT EAT ALL PLANTS IN THE WOODS



HOGS DUG UP THE BUCKTHORN AND MOST EVERY NATIVE PLANT SPECIES



TARGETED GRAZING WAS MOST EFFECTIVE NEAR THE BARN AND WATER



HORSES WERE USED TO PRE-GRAZE PASTURES TO TARGET SHEEP WORMS AND LIVER FLUKES



SHEEP IMPROVED THE PASTURE BY TARGETING WEEDS AND BRUSH



SHEEP EAT MORE BROAD LEAF VARIETIES,
HORSES PREFER GRASS



THE HOGGED OFF AREAS RESULTED IN BETTER CONTROL OF BUCKTHORN THAN GRAZING WITH SHEEP ALONE



GRAZING WITH SHEEP ALLOWED MORE NATIVE SPECIES TO SURVIVE



GRAZING WITH SHEEP ALLOWED LESS EROSION THAN HOGS



WOODLAND PLANTS ARE A VIABLE FEED SOURCE FOR BOTH SHEEP AND HOGS



HORSES WERE MOST EFFECTIVE AT IMPACTING REED CANARY GRASS



KEEPING REED CANARY GRASS GRAZED ALLOWS NATIVE SPECIES TO GROW



ROTATIONAL GRAZING REDUCED HAY CONSUMPTION AND FEED COSTS.



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AS A RESULT OF THIS RESEARCH:

- ▶ THE STATE OF MINNESOTA HAS CHANGED ITS REIMBURSEMENT POLICIES TO INCLUDE USING ANIMALS TO REMOVE INVASIVE SPECIES.