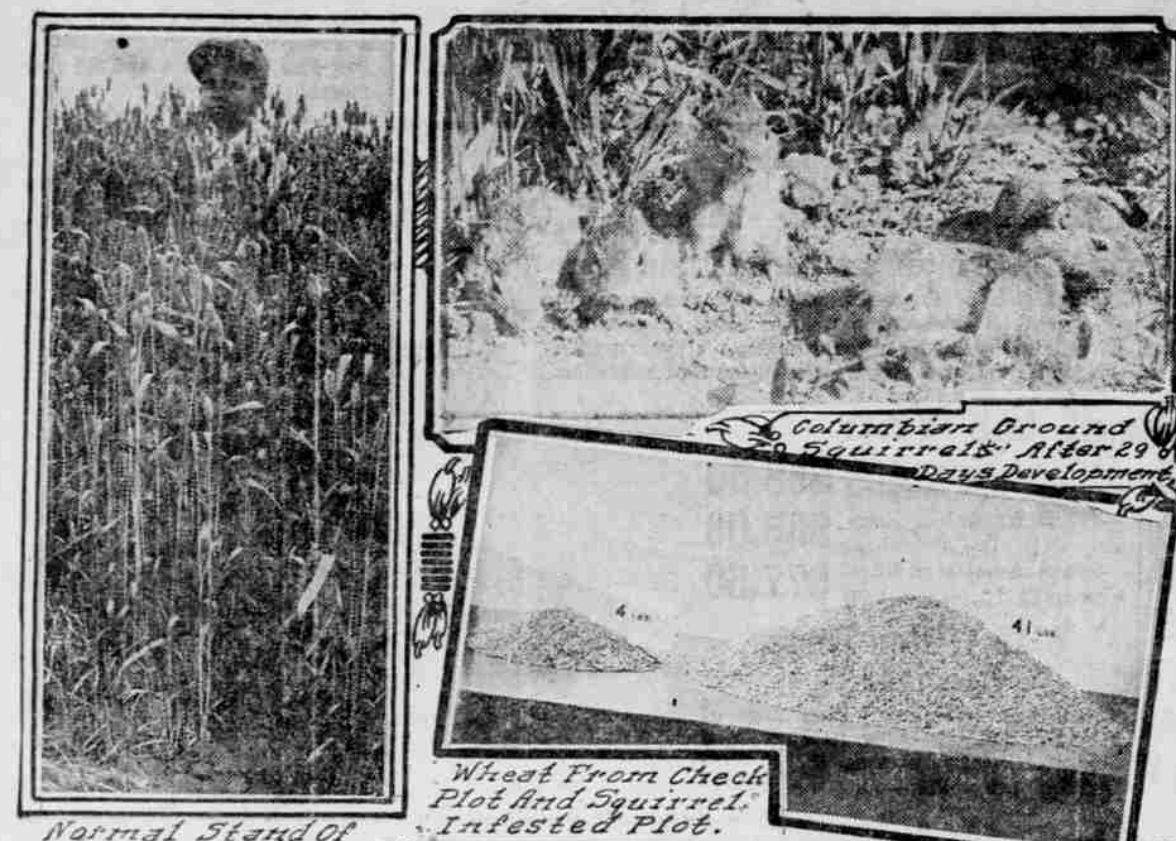


GROUND SQUIRRELS COST WHEAT GROWER \$1.76 EACH ANNUALLY, REPORTS EXPERT

Devastation by Little Rodents Tested at Washington State College Proves Menace to Production of Farm Crops—Methods for Eradication of Pest Are Poison, Traps and Gas, All Used Persistently.



THE average observer does not think of the cunning little ground squirrel as a destructive pest, but it really is a costly pest, and, in large numbers, a real menace on any farm. Such is the conclusion reached by William F. Shaw, of the division of zoology of Washington State college. Mr. Shaw has made a close study of the subject after many experiments on the agricultural experiment station farm near Pullman.

With wheat at \$2.10 and annual cost of a squirrel at \$1.76, says Mr. Shaw, when it is recorded that in seven years 7000 squirrels have been trapped on the 416 acres of College farm at Pullman, a fair idea may be gained of the damage done by the squirrels in the infested districts, unless proper steps are taken to check them.

Mr. Shaw recently lectured on the subject before the Portland Audubon society. He also has prepared a paper on "The Cost of a Squirrel and Squirrel Control," from which excerpts are printed here.

Destruction Is Studied.

—To further the investigation, a typical piece of fallow wheat was selected and sown to a good variety of wheat, Hybrid 128. The weather being favorable, the wheat germinated promptly and soon covered the ground with a good stand.

—Before winter, a part of this land was divided into sections 50x50 feet and a retaining fence three feet high and two feet in the ground was constructed about each plot to make it possible to hold the squirrels in absolute control. Within each of these plots was an old surface-obliterated squirrel den, such as is common in cultivated fields of the valleys, even after the squirrels have been absent from them for many years. In these dens are many burrows, two feet or more in diameter, with plenty of wheat at hand. Immediately adjoining were check plots of similar size, slope and soil.

—The following spring all plots were cut back to 40x40 feet to an even stand, away from the fence. Wild squirrels were trapped and brandied and the wheat was carefully marked and recorded in preparation for the season's test and were placed in the end of the field, as described below. The behavior of a representative squirrel designated as male No. 1 will be given in some detail.

Male No. 1 was placed in an old den under the wheat plot in yard 1 on March 22, at a time when the wheat was just beginning to grow. On the following day it began eating the seedling wheat. Gradual thinning around the den. By May 5, however, a very marked, sudden and disastrous change had taken place. The wheat leaves were becoming less succulent, and the squirrel, representing a species which is not dependent upon water for its liquid nourishment, had suddenly attacked the stems of the wheat plants and in the brief time elapsed had eaten the ground wheat. The wheat leaves were broken, and in doing this it cut very skillfully into the side of the stem just above one of the lower joints and extracted a stem after stem had been cut to the ground and with each stem went the loss of one future wheat head.

—It is at this time that the wheat suffers its greatest devastation from the squirrel. For earlier, a few bulky leaves, and later, an equally small number of concentrated heads would satisfy a squirrel's hunger, now it would take a large number of these very short tender stems to make a satisfying meal. From this date until May 27, the squirrel worked busily upon the stems without variation, except that on May 23 it began cutting higher up on the stem, in regions of more growth.

Squirrel Varies Diet.

On June 27 a change took place. The stems were now becoming woody in anticipation of approaching harvest. The squirrel abandoned its work on the stems and began feeding on the maturing grain. By this time the grain under the den was well carpeted with a mat of dead leaves and stems.

—In order to reach the heads of wheat, the squirrel cut into the side of the stem up about the third joint, sometimes the fourth, usually just below the joint. In this way the stem was weakened and the heads dropped to the ground, and a matted tangle of wheat stems soon replaced stately waving stalks. Many times the stem was completely cut off. In most cases the heads were then cut from the stem, close up to the grain, and carried to the mouth of a burrow and there the grain extracted and eaten. So skillfully was the grain separated from the head that the latter was left quite intact. On July 26, when the wheat was harvested, the squirrel had finished the depredations, accumulated sufficient fat for the long period of aestivation and hibernation and was seen no more. The immediate vicinity of the den was strewn with empty wheat heads and for nearly a rod around the ground was carpeted with bleached leaves and stems. From the area of the May and June stem cutting, now some green second growth heads struggled through, too green to mature and too short for the reaper.

On July 30, the several plots and

their corresponding checks were harvested, the differences taken and the damage carefully calculated. It was found that during the 120 days of activity, from March 22 to July 30, the squirrel in yard 1 had destroyed 44 pounds of wheat. Equal areas of 1600 square feet were harvested on a squirrel-infested and one free, showing in grain 38 pounds against 123 pounds, respectively. As a more striking comparison 500 square feet were harvested in the immediate vicinity of the den in yard 3 and an equal area in the check plot for this year. The squirrel infested area produced 4 pounds of grain against 41 pounds in the squirrel-free area, and in yard 4, against 39. This does not represent the entire damage done by the squirrel in plot 3, as much was done at a greater distance from the den.

The average destruction per squirrel in the experiments was 50-1-2 pounds, which at a price of \$2.10 per bushel for hard winter wheat was worth \$1.76.

Squirrels are very destructive to pasture and alfalfa although their work is not as noticeable to the casual observer as it is in grain. A very careful series of tests were made to determine the amount of white clover destroyed in one day by a breeding squirrel. The female under observation was suckling four young, fairly mature squirrels. The squirrel was given fresh clover, sod, counter-checked for loss by evaporation, through the entire day and it was found that she ate 71 grams (1-7-10) of 17.2 per cent of her own weight per day. At this rate, 385 squirrels would consume the pasture of one cow in a day or 96 squirrels would devour the pasture of one sheep in a day.

Concerted Action Needed.

The greatest need in squirrel control in any given area is concerted effort over all farms, public highways, railroads, rights of way, uncultivated and wild lands, owing to the fact that the squirrels will migrate from a badly infested area into an adjoining area from which they have been eradicated. Food habits, daily and seasonal activities and den structure of the ground squirrel must be taken into consideration in any attempt at control. The animal may be gassed, poisoned or trapped. In following any of these methods, it is necessary to prepare the field for action by clearing all brush or wild shrubbery from fence rows and adjacent wild land so that there may be a clear view of every squirrel that appears. This work can be done to advantage during the winter months. Whatever method is followed, work should be begun early in the season before the young appear from the dens.

When the squirrels are very abundant or where soil conditions do not favor the use of a gas or in a wild, partially cleared lands or burned, poison is of great value. The United States department of agriculture offers a formula that is supplied on request.

In the gas method the squirrel is given no choice and little chance of escape. Carbon bisulphide, a poisonous liquid vaporizing on exposure to air and forming a heavier-than-air gas, is most practical. It is used best with a vaporizing machine, forming a blast of poisonous vapor so rapidly that the squirrel has not time to dig from it. By this method 160 acres of badly infested land near Pullman was completely cleared of squirrels. Carbon bisulphide may be used by dropping saturated waste balls in the holes.

Trapping, properly done, is very

effective. Ordinary steel squirrel or rat traps are used. These are placed, uncovered, in each hole of a den and chained to a tall marking stake. In the course of a day or so the squirrel becomes accustomed to the trap and is caught.

ROAD BONDS ARE FAVORED Sentiment at Hood River Indorses \$500,000 County Bond Plan.

HOOD RIVER, Or., March 20.—(Special.)—Sentiment is crystallizing throughout Hood River county on the proposition of bonding for permanent highway improvement. Suggestions for voting the limit of road bonds, plans that would result in a fund of approximately \$500,000, have been favorably received. Yet the indefiniteness of the system of roads that would receive the money so raised is causing many to withhold their sentiment on the proposition.

The road bonding proposition was discussed at a meeting of the Hood River Commercial club this week, when about 150 members were present.

FOREST PHONES LAID Northern Canada to Protect Valuable Timber.

OTTAWA, Ont.—Four hundred miles of telephone are to be laid through the forests of northern Canada as part of the scheme of the Ottawa River Forest Protective association for the prevention of forest fires.

The secretary announced that the association had expended \$25,000 of forest patrolling and fire fighting last season.

Back hurt you? Can't straighten up without feeling sudden pains, sharp aches and twinges? Now listen! That's lumbago, sciatica or maybe from a strain, and you'll get blessed relief the moment you rub your back with soothing, penetrating "St. Jacobs Oil." Nothing else takes out soreness, lameness and stiffness so quickly. You simply rub it on and on, comes the pain. It is perfectly harmless and doesn't burn or discolor the skin.

Limb up! Don't suffer! Get a small trial bottle from any drug store, and after using it just once you'll forget that you ever had backache, lumbago or sciatica, because your back will never hurt or cause any more misery. It never disappoints and has been recommended for 60 years. —Adv.

PAPE'S DIAPEPSIN FOR INDIGESTION

CHEW A FEW—END STOMACH DISTRESS!

At once! Indigestion, Heartburn, Gas and Dyspepsia, caused by Acid Stomach is relieved. Buy a box! Eat meals without fear! Read "Common Sense Rules Regarding Stomach" in package.

Bugs at the State Hospital "Jagged" on Poppies.

Insects Deprived of Joy This Year by Killing Snow.

SALEM, Or., March 20.—(Special.)—So-called "bug jags," which for several seasons have been popular and much sought at the state hospital for the insane here, will not be available during the year 1930, according to prediction made today by Dr. R. Lee Steiner, superintendent of the institution.

Elimination of the "source of supply," together with the pleasant after effects, may be blamed to the elements, according to Dr. Steiner, and not to any intentional act upon the part of the management to deprive the bugs of this delightful pastime.

Soon after Dr. Steiner assumed charge of the hospital he set out to beautify the grounds, and among other improvements planted a number of poppies. These soon became the pride of the superintendent and were much admired by the hundreds of visitors at the institution during the summer season.

Finally the bugs took a liking to the flowers, and last year many of the blooms were practically covered with these lovers of nature's stimulant. The poppies, as everyone knows, contain opium, and it goes without saying that the bugs made the most of their opportunity. So human-like were the activities of these insects that crowds gathered about the plants for hours at a time and watched their maneuvers.

After getting their fill of the soothing drug the bugs would drop to the ground, where they reposed in peaceful slumber. Recovering from these spells of intoxication, the bugs again

would climb to the top of the branches and re-satisfy their appetites. For days these bugs would continue their debauch, and in the language of Dr. Steiner they acquired as many as eight or nine matured jags during the course of a few hours. As often they would sleep off the effects of the drug, and then resume operations.

As far as the doctor was able to determine the casualties were light, and each succeeding spring the bugs were

Tire Prices Have Advanced

But 1,000,000 Motorists Will Save 1/2

A new advance in the price of automobile tires became effective March 8. Prices jumped from 15 to 25%.

With the problem of high living costs pressing on all sides, this situation demands a greater tire economy than ever before. Every dollar spent must bring maximum tire service.

Over a million motorists have already solved this problem with Gates Half-Sole Tires. They are now getting from 10,000 to 15,000 miles from the same tires which used to give them 5,000.

W. C. Wilbourn, 430 Alder Street, Portland, Oregon

OREGON.
Ashland—Eastern Supply Company.
Astoria—Highway Tire Service, 511 Duane St.
Baker—Tire Surgery, per R. L. Gorman.
Eugene—Jay Moore.
Freewater—Virgil G. Goodman.
Gresham—Charles A. Hansen.
Hepburn—Stephen M.
Hood River—Hight's Garage, Inc.
John Day—Elec. Shop & Battery Serv. Sta.
Junction City—S. M. Fries.
Klamath Falls—Charles R. Johnson.
La Grande—Leighton & Oxner.
McMinnville—B Street Garage.
Medford—R. A. Petty Jr.
Newberg—W. S. Stull.
Pendleton—Gertson & Marty.
Portland—Wm. C. Wilbourn.
Portland—Union Ave. Tire & Bal. Shop.
Roseburg—Clarence O. Baker.
Salem—The Quackenbush Co., 219 No. Commercial St.
The Dalles—Motor Service Company, 101-113 E. 2d St.
Woodburn—N. Becker & Son.

WASHINGTON.
Vancouver—Hansen Tire Service, 109 E. 8th St.

If there is no dealer in your territory write direct to The Gates Rubber Company, Denver, Colo.

GATES HALF SOLE TIRES

Cost Only 1/2 as Much

CHILD'S HAIR ALL CAME OUT
With Milk Crust. Could Not Sleep. Cuticura Heals.

"When baby was six months old he developed a very bad case of milk crust. He could not sleep night or day. The milk crust was very disfiguring and his head and cheeks were covered with a scale. His scalp was sore and red, especially when he scratched it, and his hair all came out. The trouble lasted about two months when I heard of Cuticura Soap and Ointment, and I used two cakes of Cuticura Soap and one box of Ointment when he was healed." (Signed) Mrs. C. Bennett, R. D. 1, Box 33, Downey, Idaho, April 16, 1919.

Cuticura Soap, Ointment and Talcum are all you need for all toilet and nursery purposes.

Sample Box Free by Mail. Address: "Cuticura Laboratories, Dept. H. Mather, Mass." Sold everywhere. Give Cuticura Soap a trial. Cuticura Soap shaves without mug.

"Every Hour or So"

He Had to Arise at Night Because of Kidney and Bladder Ailments.

Tells of the Good Balmwort Tablets Worked.

Mr. W. E. Goff, connected with the D. L. & W. R. Co., Syracuse, N. Y., writes: "For two years I had suffered from disorders of the kidneys and bladder. Distressing pain in the back and hips, depression and extreme nervousness. Also a frequent desire to urinate, many nights every hour or so. I would have to arise, as the pressure in bladder region was unbearable. My ankles swelled and my skin became dry and harsh. After using Balmwort Tablets I noticed relief and continued taking until now I feel wholly relieved of pain and suffering. I am glad to recommend Balmwort Tablets as a most reliable beneficial medicine."

The Blackburn Products Co., Dayton, Ohio, guarantee every package satisfactory, or money back, so why not stop your pain and distress with Balmwort Tablets? Sold by leading druggists. Price, \$1.00.—Adv.

Phone Your Want Ads to THE OREGONIAN Main 7070 A 6095

on hand to satisfy their drug-anealing proclivities.

Just as these much-sought flowers were about to make their debut for the 1930 season a few weeks ago along came a snow fall and attendant low temperatures. As a result they

were killed, and this year the bugs will be compelled to seek other pastures.

Three-fourths of all the coal of the world is mined in eight-hour shifts.

New Hair Growth After BALDNESS

HAIR GROWN ON MR. BRITAIN'S BALD HEAD BY INDIANS' MYSTERIOUS HAIR GROWER

My head at the top and back was absolutely bald. The scalp was shiny. An expert said that as he thought the hair roots were extinct, and there was no hope of my ever having a new hair growth.

Yet now, at an age over 60, I have a luxuriant growth of soft, strong, lustrous hair. No trace of baldness. The pictures shown here are my photographs.

Indians' Secret of Hair Growth

At a time when I had become discouraged at trying various hair lotions, tonics, specialists' remedies, etc., I came across, in my travels, a Cherokee Indian "medicine man" who had an elixir that he asserted would grow my hair. Although I had but little faith, I gave it a trial. To my amazement a light fuzz soon appeared. It developed, day by day, into a healthy growth, and ere long my hair was as prolific as in my youthful days.

That I was astonished and happy in expressing my state of mind mildly. Obviously, the hair roots had not been dead, but were dormant in the scalp, awaiting the fertilizing potency of the mysterious pomade. I negotiated for and came into possession of the principle for preparing this mysterious elixir, now called Kotako, and later had the recipe put into practical form by a chemist.

That my own hair growth was permanent has been amply proved. Many men and women, also children, have reported satisfactory results from Kotako.

How You May Grow YOUR Hair

My honest belief is that hair roots rarely die even when the hair falls out through dandruff, fever, excessive dryness or other disorders. I have been told by experts that often when hair falls out the roots become imbedded within the scalp, covered by hard skin, so that they remain for a time like bulbs or seeds in a bottle which will grow when fertilized. Shampoo (which contains alkalis) and hair lotions which contain alcohol are enemies to the hair, as they dry it, clog the follicles, and cause the hair to fall out. Kotako contains no alkalis, no alcohol, and gives new vitality to the scalp and hair.

PROVE FOR YOURSELF

Get a box of the genuine Kotako at a reliable druggist's \$300.00 GUARANTEE with each box. A small testing box of Kotako (with testimonials, etc.) may be obtained by sending ten cents, silver or stamps, to my address below.

JOHN HART BRITAIN, Station F, New York City

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

ECZEMA CAN BE CURED Free Proof To You

Corns Go As "Gets-It" Comes

Pain Stops Immediately—Loosen and

Lift Off Quickly.

A few drops and "goodbye!" That's how "Gets-It," the modern corn killer, handles corns. All you do is put a few drops on the corn, "Gets-It" does the rest—and it is a plenty. Pain ceases instantly—corn ready to lift off soon after.



A very little time and a bottle of "Gets-It" will entirely free you from corns. Then, why not be free? No pain, no trouble, no danger. Just quick, sure, certain relief. Corns and "Gets-It" just will not live together, and it's the corns that move.

It's common sense—the "Gets-It" way. You lift the whole corn right off without even feeling it after "Gets-It" has put it out of business. Corns haven't enough "pep" left to hurt after they mix with "Gets-It."

"Gets-It," the only sure, guaranteed, money-back corn remover, costs but a trifle at any drug store. Mfd. by E. Lawrence & Co., Chicago. Sold in Portland and recommended as the world's best corn remedy by The Owl Drug Co.