

when your season rolls around...



be ready to roll with a NU nes sod harvester



NU nes Slab Sod Harvester . . .

lifts, cuts, and conveys slabbed sod to loading platform. Handlers can load directly on to pallet as tractor moves.

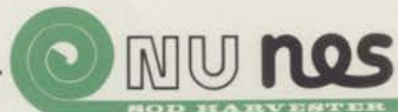
PATENT APPLIED FOR

- With a NU nes Sod Harvester and three men you can lift, cut, roll and palletize up to 1200 square yards of sod per hour.
- The harvester, developed at Cal-Turf Farms in California, is designed to handle any length of rolled or slabbed sod.
- Field grading of sod is done by the tractor operator, who has clear visibility at all times.
- Hydraulic controls permit quick and easy adjustment for all conditions.
- The sod harvester travels alongside, never on the turf, during harvesting and can pick up and roll sod at any time your tractor can operate in your field.
- Sod can be cut with any type of sod cutter. The long ribbons can then be lifted and cut to any desired length from 24" to 90", size depending on thickness of sod.
- Loaded pallets can be spotted for later field removal and be clear of the next harvest run. If direct truck loading is desired, a conveyor extension is available.
- The basic power train is a Ford LLG-2110 wheel tractor. The sod harvester can travel at speeds up to 17 MPH for quick transportation between plots.
- The efficiency of this all-mechanical operation has been proven on Cal-Turf Farms in Patterson, California, and it can solve the problem of quick and economical harvesting of sod for all turf farmers.

For more information please contact:

THE JOHN NUNES MECHANICAL HARVESTING CO.

2006 Loquat Avenue, Patterson, California 95363, Phone (209) 892-6311



For More Details Circle (115) on Reply Card

The Cover

Ken Voorhies, superintendent at the Columbine Country Club, near Denver checks condition of green.

Voorhies has made great progress with this course during his 10-year tenure and has some practical ideas on turf management and record-keeping. His story begins on page 25.

Platz Elected President of NFSA for 1968-69

Edward A. Platz, owner and general manager of Plant Food Chemical Co., Cranbury, N. J., was elected president of the National Fertilizer Solutions Association at its 14th Annual Convention and Exhibition in New Orleans.

Other 1968-69 officers elected include: vice president — B. G. (Bob) Boswell, manager of Chemical Division, Goodpasture, Inc., Brownfield, Tex.; secretary — John D. Hershey, sales manager of Molder Rubber Goods Division, Gates Rubber Co., Denver, Colo.; treasurer — Glen A. Brandt, president of Brandt's Fertilizer Service, Pleasant Plains, Ill. W. R. (Bill) Stephens, vice president of Chemical Plants Division, Barnard and Leas Manufacturing Co., Cedar Rapids, Ia., was presented with NFSA's "Man of the Year" Award for his contribution to the association.

Thompson Pesticide Guide

Thompson Publications has recently published *The 1969 Insecticide, Herbicide and Fungicide Quick Guide and Date Book*, designed to be used as an everyday reference tool for the man making pesticide recommendations. For a copy, priced at \$15, write the company, P.O. Box 989, Davis, California 95616.

WEEDS TREES and TURF

FORMERLY WEEDS AND TURF

January 1969

Volume 8, No. 1

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BPA Application Applied For

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The next two months can be among your most profitable. This is the prime season for winter meetings.

On the winter agenda, you'll find association meetings, commercial sessions by suppliers and equipment manufacturers, college sponsored industry sessions, short courses and many special conferences. Regardless of name or sponsor, all offer up-to-the minute data in a specific field.

For the operator who seldom finds time during his own busy season to do more than manage his operation, winter technical meetings are a god-send. He can, usually for the price of a minor registration fee, and in a 2- or 3-day period, pick up the latest research and methods in his field. Further, he will likely get the information direct from the men who are doing the reasearch or field testing work in the particular area.

Besides new test data, meeting programs cover a broad range of helpful subjects. Management tips, coming legislation, rulings on current regulatory laws, business forecasts, pricing data, labor problems, general industry news, and subjects germane to vegetation care and control can stimu-

late enthusiasm for business. Trade shows add more flavor with equipment and general exhibits for demonstrations.

An even more important factor which we have often mentioned is the chance to visit with people in the same business. You get to know them. And, if you haven't attended many off-season conferences, you'll soon learn that these idea-swapping sessions are the most satisfying segment of the meeting.

Values gained from the winter conferences are not restricted to management. Most meetings are geared to be extremely helpful to employees, particularly those key members of your staff who help make your business successful. What better public relations plan can you devise than to include them? You can promote loyalty to your own business and at the same time benefit from the new knowledge your employees can gain at a winter session.

The winter meeting boom is on. Look over the meeting calendars you have on hand, and take advantage of what might well be termed a technical but refreshing type of work break.

February

WEED CONTROL PLANNER



Timing is Everything

In February, regardless of where you are geographically, there are certain steps that you can take in weed and

brush control that will enhance effectiveness of kill and save you money. Make your preparations now. The February list begins this way:

Steps to Take Now

General mixed brush can be controlled at any season, BUT, if you do it now, it will give better kill on resistant species such as red maple, ash and the conifers. And you will avoid unsightly brown-out and eliminate the possibility of crop damage. Also, labor and equipment are more available now.

What to Use Now

Use 1½ gallons of Dinoxol® or Trinoxol® per 100 gallons of fuel oil. Thoroughly wet dormant canes to ground line. Tip: Concentrate on root collar zone and exposed roots.

What Else to Do Now

Check equipment. There will never be a better time. Calibrate. Be sure you know the actual rate at which you spray. Clean out tanks. Replace worn nozzles. Tip: Ester brush killers sink through oil at low temperatures. Agitate thoroughly in preparing large mixes.

First name in herbicide research

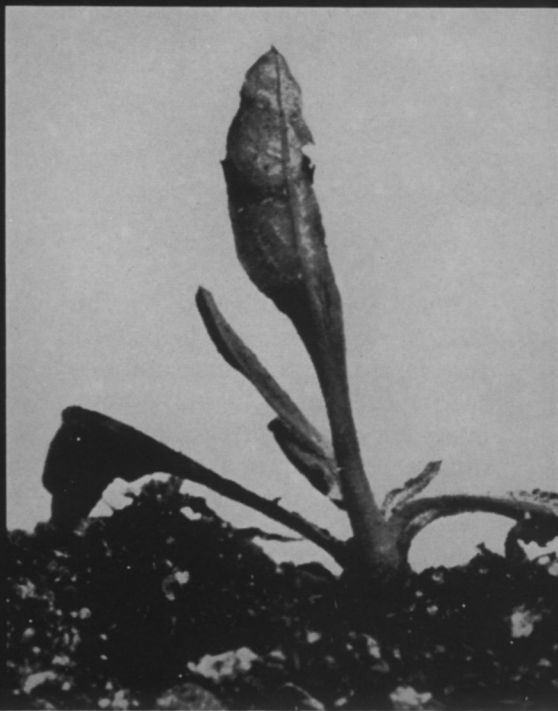


See your Amchem representative for an individualized, month by month prescription for your weed control problems.

AMCHEM PRODUCTS, INC., AMBLER, PA.

For More Details Circle (105) on Reply Card

Sudden death to all weeds.



Spray once with Assault® and kill off all weeds. Assault begins destroying foliage immediately and penetrates the soil to attack the roots. Regrowth is no problem, either. Assault stays in the soil for as long as 12 months.

But that's only half of it. There are no messy powders to dilute. Just add water to the liquid concentrate and you're ready to spray.

It makes clearing the land a one man job. For details, and for

a free weed identification chart, write: West Chemical Products, Inc., Dept. WTT-1, 42-16 West St., Long Island City, N.Y. 11101.

GO WEST

Assault



For More Details Circle (104) on Reply Card

Dale Kern, author of this comprehensive review of seed testing programs is president of Seed Technology, Inc., an independent laboratory located at Marysville, Ohio. In operation since 1954, the lab does testing from coast to coast in addition to contracts with the governments of Formosa, Germany, and France. Many major seed companies in this country are clients of Seed Tech. WTT is happy to present this forthright analysis by Mr. Kern for benefit of the turf professional.



Seed Technology, Inc. Develops

Turf Analysis Test

By DALE KERN

TODAY there is good news for you who are professional turf men. No longer are you forced to live with the law of averages when you plant seeds! This law of averages indicates that 20 percent of the professional turf men who seed grass on golf courses will be sowing *Poa annua* up and down fairways next spring. That's one of every five.

Again, the law of averages says 8 percent will be planting bentgrass in fairways. Six percent will be dropping timothy seed from tee to green on No. 7 or maybe the other seventeen. Four percent will be planting sorrel—and 5 percent will infest fairways with chickweed, come planting time in May.

These percentages are dictated by the law of averages. But, this law, like every law, has a loophole.

"Beating the law of averages" wasn't conceived by my profession. The United States Department of Agriculture thought of the idea many years ago. In fact, this department established the standards that the seed industry must meet in order to sell seed.

Standards established by the USDA were designed to protect the farmer from unscrupulous seed merchants. As you know, every lot of seed offered for sale must carry a tag or label.

The seed grower and seed merchant must be sure his seeds are properly labeled before they are offered for sale. So, the grower or merchant submits samples of seeds to laboratories for testing. These laboratories meet the specifications established by law, and provide the seed merchant with a certificate of analysis. Now the merchant can legally label and sell his seed.

This is a good arrangement; except — government regulations and standard laboratory tests **DO NOT GIVE YOU, THE PROFESSIONAL TURFMEN, WHAT YOU NEED.**

Why?

Standard laboratory tests that meet government specifications fail to tell the full story. A standard analysis tag means different things to different people. To the merchant, it means he can legally sell his wares. To the lab technician, it means all his procedures have complied with Feder-

al Seed Act Regulations. To the buyer who will plant the seed, this tag could mean almost everything . . . or practically nothing.

It all depends on how much the buyer wants to know, and how much he is willing to guess.

More Info Needed

If you want beautiful fairways, with a very minimum of weed problems, then you need all the information possible. You have to know! If, on the other hand, you are satisfied with average results, you can afford to guess.

When you study the analysis tag, how much will you know, and how much will you be required to guess?

Suppose we analyze the tag. It tells, by percentage of weight, (that term is mighty important) the pure seed, crop, inert, and weeds in a sample of seed. It also tells the percentage of seeds that germinated, and date of germination test.

Now, the breakdown.

Item by item; here's what you'll know, and here's what you'll have to guess.

For example, consider a tag taken from a lot of high quality,

blue tag, certified Merion bluegrass seed.

Pure seed	97.85%
Crop	.10%
Inert	2.00%
Weeds	.05%

Again, remember, all of the figures are percentage by weight.

Let's go back to the top line.

Pure seed—97.85%. What does this mean to you as a seed buyer? Simply this: 97.85 pounds in every 100 pound bag is pure Merion bluegrass. The other 2.15 pounds are made up of inert, crop and weeds.

If you know the percentage of pure seed, and the total number of pounds in the lot, it's a matter of multiplying the percentage by the total weight to know the pounds of pure Merion bluegrass you are getting for your dollars. There isn't much to guess about in the "Pure Seed" category.

Back to the tag—this time look at Crop percentage. Here we find the percentage figure .10%.

Now, what do you know?

Well, you know that by weight there is about one-tenth of one percent Crop Seed in the lot. You also know Crop is any seed grown for economic purpose.

Anything left to guess about? You better believe there is! First of all, what kind of crop makes up this one-tenth of one percent by weight?

If you guess Delta, Park, Newport bluegrass, or seeds of Red, Chewings or Illahee fescue, no problem. The plants produced by these seeds will probably never be noticed by the average golfer.

But, if you guess wrong—if the crop seeds are timothy, redtop, tall fescue, ryegrass, Orchard grass or bentgrass—you're in trouble. Most of these are pasture grasses. Their plants are broad-leaved, off-color, fast growing clump or bunch grasses, and appear unsightly to everyone.

How Many Seeds

Here is something else in the Crop category you can guess—HOW MANY SEEDS are repre-

TURF ANALYSIS

A Special Test designed for Golf, Industrial, and Sod Superintendents

Lab No. <u>17759</u>	%	PURITY	GERMINATION
Labeled as <u>MERION KENTUCKY BLUEGRASS</u>		Pure seed	% normal
Lot No. <u>1-3142</u>	98.43	<u>MERION KENTUCKY BLUEGRASS</u>	89
Date <u>JUNE 21, 1968</u>			completion date
FOR <u>SEED CO.</u>			<u>JULY 23, 1968</u>
	.16	crop	Remarks:
	1.41	inert	
	.00	weeds	
			Tetrazolium %

25 GRAM SAMPLE HAS BEEN CHECKED FOR THE FOLLOWING CONTAMINANTS

Per lb CROPS	Per lb WEEDS	Per lb WEEDS	Per lb WEEDS
<u>91</u> Bentgrass	Barley, foxtail	Heal-all	Velvetgrass
Bromegrass	Barley, wild	Henbit	Wild onion
Clover, alsike	Black medick	Knotweed	<u>217</u> Windgrass
Clover, hop	Camomile	Mayweed	Yarrow
Clover, white	Cats-ear	<u>18</u> Mustard	Yellow rocket
Fescue, meadow	Chess	Pennycress	OTHERS
Fescue, tall	Cinquefoil	<u>36</u> Peppergrass	<u>109</u> PIGWEED
Orchardgrass	Cress	Plantain	<u>199</u> CURLY BLOOM
Poa Trivialis	Dandelion	Puccinellia	<u>18</u> FALSE FLAX
Redtop	Dock	Sedges	<u>109</u> CHICKWEED
<u>72</u> Ryegrass	Erysimum	Shepherds purse	
<u>18</u> Timothy	Fescue, raitail	Silver hairgrass	
Wheatgrass	Fleabane, daisy	Sisymbrium	
<u>0.16%</u> KENTUCKY BLUEGRASS	Foxtail, water	Sorrel	
	Goosegrass	Speedwell	

Poa annua 91 per pound based on a 10 gram examination



seed technology inc.

SPECIALIZING IN THE ANALYSIS OF TURF GRASSES
R.F.D. 5

Marysville, Ohio



DALE KERN

Seal No. 016

Registered Technologist

Example I. Turf analysis test lists eight kinds of weeds for a total of 888 weed seeds per pound, including 91 *Poa annua*. Also, report shows 181 crop seeds per pound.

Lab No. <u>17759</u>	% PURITY based on <u>1</u> gm.	GERMINATION	
Labeled as <u>MERION KENTUCKY BLUEGRASS</u>		PRELIM.	FINAL
Lot No. <u>1-3142</u>	98.43	in ___ days	% Hard % Normal
Date <u>JUNE 21, 1968</u>	<u>MERION KENTUCKY BLUEGRASS</u>		89
FOR <u>SEED CO.</u>		No. of seeds used. Germ <u>400</u> TZ ___	
	.16	Completion date <u>7-23-68</u> in <u>28</u> days	
	1.41	Charge	
	.00		
Carbon copy	OTHER WEEDS	CROP	
NOXIOUS WEEDS for <u>ALL STATES</u>	based on <u>1</u> gm. rate/oz.	based on <u>1</u> gm. rate/oz.	
NONE FOUND	NONE FOUND	KENTUCKY BLUEGRASS <u>0.16%</u>	
RATE OF POA ANNUA BASED ON <u>1</u> GR			
REMARKS			



CERTIFICATE OF ANALYSIS

seed technology inc.

SPECIALIZING IN THE ANALYSIS OF TURF GRASSES
R.F.D. 5

Marysville, Ohio



DALE KERN

Registered Technologist

Seal No. 016

Example II. Standard test following regular procedures for testing and reporting shows no weeds, and .16 percent crop seeds which in this instance are Kentucky bluegrass.

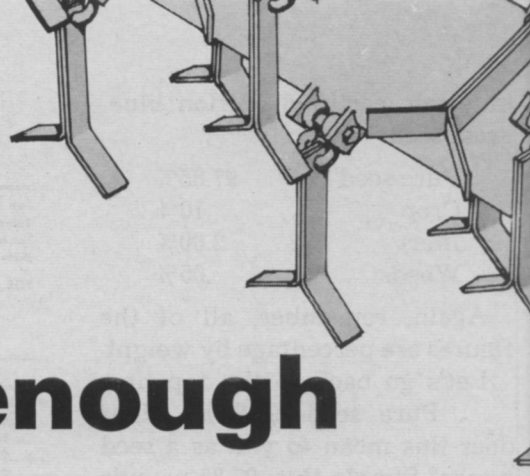
sented in this .10%.

As you know, all crop seeds are not the same size. Some are large, some are quite small. They come in assorted sizes. The .10% represents only about 1½ ounces in a hundred pound bag.

Suppose you are going to seed a new fairway that is about 400 yards long and 50 yards wide.

If .10% by weight of tall fescue (the seeds being quite large and heavy) this would be equivalent to 54,400 plants of this type

Mower knives thin enough to fine-cut...thick enough to resist breakage



**Worth more—
when you buy, use, trade**

International 70 flail mower with 2444 Lo-Boy tractor

Many purchasing agents insist on the safety of a flail-type mower to eliminate the hazards of thrown debris.

International 7-foot flail mowers not only offer greater safety by driving debris down toward the ground, not out—but give you a good grass-grooming job as well. Easily reversible double-edged knives are thin enough to fine-cut grass which sifts down as fine particles. Yet they're thick enough to resist breakage from cans, stones and sticks.

Mower safety is assured by the husky contoured housing, formed and bead-welded to the heavy frame. A thick rubber safety curtain at the rear discharge end makes sure debris is deflected to the ground. Unlike canvas, this curtain resists ripping, rotting or shredding.

The mower is powered by an International 2444 Lo-

Boy tractor with a 43½-hp diesel or a 47-hp gas, 4-cylinder engine. This tractor is famous for its short, 8½-foot turning radius and low, 50-inch profile. Choose your transmission: standard Hi-Lo with 8 speeds forward, 2 reverse or optional 8 and 8.

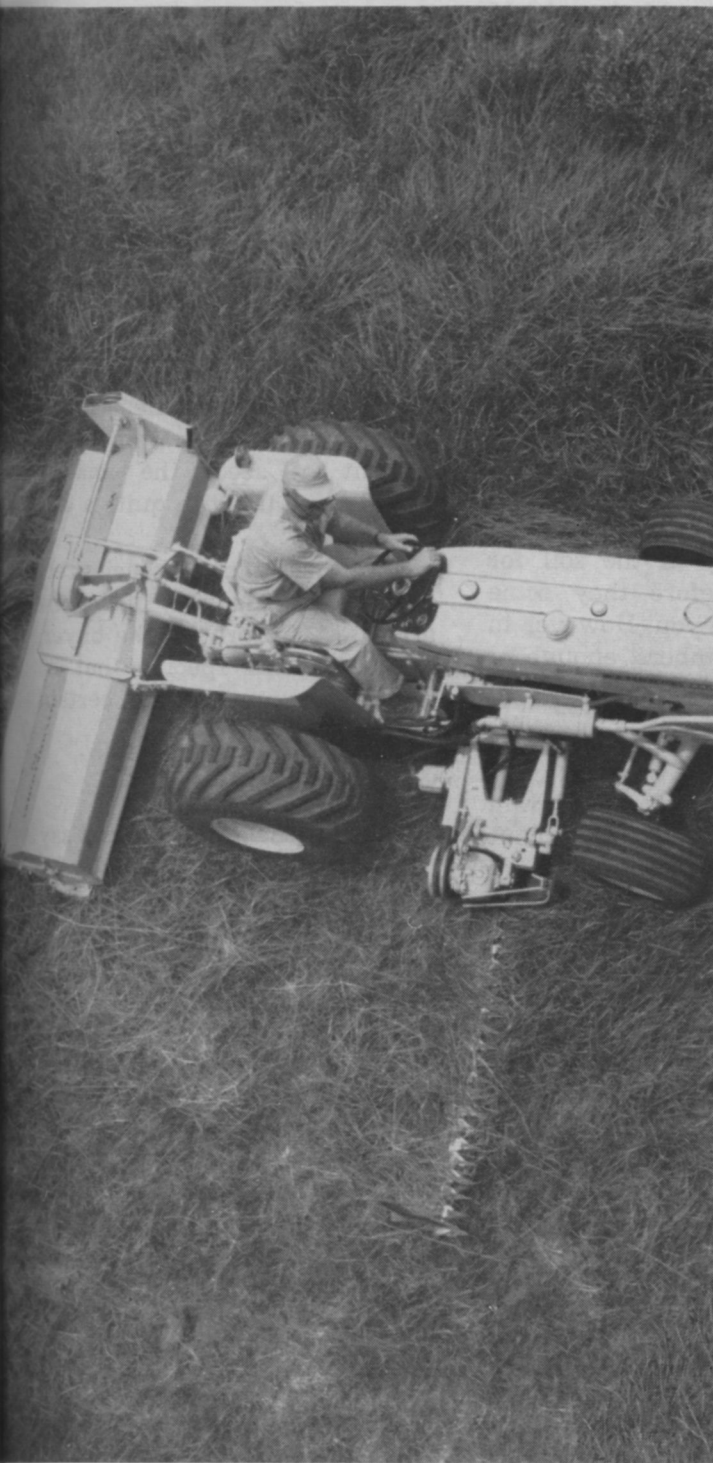
See your International dealer for all the details on 70 flail mowers and 2444 tractors—plus IHCC credit plans that easily dovetail with your purchasing program.



INDUSTRIAL EQUIPMENT
Wheel and crawler tractors • loaders • backhoes
dozers • forklifts • mowers • special duty tools

International and Lo-Boy are registered trademarks of International Harvester Company, Chicago 60611.

Double up with International 2444, flail mower and 110 hydraulic drive side-mounted mower.



up and down your fairway.

If this were .10% Orchard grass, it would give you 364 seeds per pound, or 72,000 seeds in your fairway of this type of plant.

Another old pasture grass often found in Merion is timothy. That .10% would produce 254,000 plants of this nature up and down your fairway.

The smallest crop seed we see is bentgrass. Seed is so small that .10% by weight equals 948,000 seeds in the 200 lbs. of Merion bluegrass required to seed that 400 x 50 yard fairway. Yes, that is right, 948,000 seeds providing bent patches all up and down your fairway.

In each case, the .10 percent of the crop seeds just mentioned would be a serious problem.

Inert Materials

Now we come to inert—the percentage by weight of anything that is not classified as a seed. This could be corn cob, ground up hay, sand, or chaff—we've seen them all.

Here we see the figure 2.00%. The only type of inert likely to be present in the seed you are buying is chaff, which are empty hulls.

Now, let's consider the last item on our now familiar tag. Here we see weeds, .05%.

Simple arithmetic—and you will know the number of ounces or pounds of weeds in a lot of seed.

From this point on the prognosticator can really have a field day. And, I know of no place where guessing wrong carries a greater penalty.

You can guess:

1. What kind of weeds are in the lot?
2. Are the weed seeds large or small?
3. How many seeds does this .05% represent in a 100-pound bag?
4. Are they problem weeds?
5. Will the weeds survive low, frequent mowing and a freezing winter?

6. Will the weeds spread out in all directions by underground stems called rhizomes?

7. Will the texture and color stand out and be unsightly?

If we take that .05% weeds and start seeding our 400 x 50-yard fairway, here's what could happen.

This .05% by weight of knotweed, when expanded to the fairway, would give you 75,000 of these plants to distract from the uniformity of your bluegrass. Suppose it's only .05% of chickweed. These seeds are extremely small and you could place 4 to 5 of them on the head of a pin. Their smallness would account for 560,000 of these plants up and down your fairway. Let's take a look at an old familiar one to all. If the .05% weed happened to be all *Poa annua* seeds that would calculate out to 151,200 annual bluegrass plants to combat. We regularly see these weeds present in that amount. It is obvious that out in the fairway not every one of these problem seeds survive. Many do not germinate, others start to grow and are not strong enough to survive. Still others will lay in the soil for some years before they come forth to plague you. However in these great numbers, enough of them will make it to create real problems.

One Gram Tests

Now, let's consider one gram of seed. It fills a teaspoon about $\frac{2}{3}$ full! This is the amount of seed the U.S. Department of Agriculture recommends to be used in making a purity analysis. Every laboratory in the country uses 1 gram of seed (Merion bluegrass included) to determine the percentage of pure seed, crop, inert and weeds.

This one gram is sub-divided from a large amount of seed, and could represent 5 pounds or 5,000 pounds. In spite of the very small amount of seed used, the test is fairly accurate.

When I say this one gram test is fairly accurate, I do not wish to infer that it is always adequate. This is pretty much the crux of our discussion—what is adequate for the farmer, the home gardener, or the housewife is by no stretch of imagination adequate for you as a professional turfman.

Let me explain!

Suppose we take the two items you are most interested in when you buy a lot of seed; namely, weed and crop. As I said before, every laboratory in the country uses 1 gram (or about $\frac{2}{3}$ teaspoon of seed) in making the test. Now, if no weeds or no crop are found in this very small amount, naturally the tag would read "NONE" under the weed column, and .00% under the crop column. You, as the buyer, would assume when you read the tag that the entire crop was free of weeds and crop.

Unfortunately, in most instances this **JUST ISN'T TRUE!**

If the seed laboratory were to take 10 or 25 times the original one gram and examine this amount of seed, the analyst would come up with quite a different story.

State and Federal agencies recognize the inadequacy of the one gram test. To protect the buyer, these agencies specify that 25 grams be examined for certain weed seeds.

Which Weed Seeds

The Certification agencies say the seed laboratory must look for certain weeds and list them as they examine the 25 grams. There are two that might be a problem to you; quackgrass and wild garlic. You can forget about the rest; you'll never have a serious problem with them. Keep in mind that this list was designed to cover all kinds of certified seed, not just Merion bluegrass.

What happens when the seed analyst detects other weed seeds that you and he know could be