

## SEED QUALITY CONTROL

# The Basis for Turfgrass Success

Seed quality is only the first of many important facets in getting a viable stand of turfgrass. But it is probably the most important step in that a grower needs to know the specific analysis of seed in order to manage intelligently.

Turf seed analysis is available today — but complete testing is not the norm. Only a few seed companies do more than the various state

laws demand. Those who do earn the premium price they have to get for their seed. For the user, the extra cost is often considered nominal when compared to the direct value he receives.

For example, state laws require only that one gram of bluegrass seed for up to 66,000 pounds of seed be tested for the percentage of crop, inert, weed and pure seed. Commer-

cial labs doing such testing readily admit the single gram tested is insufficient to pinpoint impurities which may exist.

The 25-gram test demanded by some companies and the 100-gram tests which are much more expensive go much further in giving both seller and buyer the information necessary to determine worth of a seed lot.

Seed Technology, Inc., at Marysville, Ohio, has tested for most major U.S. and some foreign countries over a 20-year period. Tests are made on a custom basis — and the seed house orders options to meet its own set of seed standards. All options extend well beyond the legal requirements.

Foreign seeds are rated as (A) uncontrollable, (B) controllable, or (C) no problem. The specific seeds, whether weed or crop seed, vary by the particular area of the country. Some seeds which are foreign when found in a turfgrass seed lot are problems in the Midwest but may be no problem on the west coast. The classifications have been worked out in cooperation with university researchers in the various geographic areas of the nation and the seed analysis is made on each test accordingly.

Seed quality standards — the highest legally required in the nation and set up by the state of Washington for certified sod quality seed — call for a statement of minimum purity, minimum germination, the maximum percent of certain other crop seed (0.1% or more in some cases allowable), and the maximum percent of weed seed (0.03% allowable). However, the allowable other crop seed excludes such things as ryegrass, orchardgrass, timothy, bentgrass, big bluegrass, Canada bluegrass except for Kentucky bluegrasses, *Poa trivialis*, smooth brome-grass, reed canary grass tall fescue and clover. The allowable weed seed excludes such things as dock, chickweed, crabgrass, plantain, black medic, annual bluegrass, velvet-



Kevin Kern, technician, uses vibrator developed by Seed Technology, Inc., to check turfgrass seed sample. Vibrator directs seed past operator at a variable speed rate depending on type and condition of seed. Magnification range is  $1\frac{1}{2}$  to 25 power. Unit permits careful examination of seed at a rate 10 times faster than hand method, which also includes use of a hand lens.

Following are results of tests of one seed lot which shows the findings on one, 25, and 250 gram samples:

**Purity 98.42    Crop 0.10    Inert 1.48    Weed 0.00    Germ 89%**

1 gram test	25 gram test	250 gram test
Ky Bluegrass .10% (C)	Ky Bluegrass .10% (C)	Poa annua 4 (A)
	Windgrass 126 (C)	Smooth Bromegrass 2 (A)
	Tansy 18 (C)	Bentgrass 4 (A)
		Chickweed 4 (B)
		Ky Bluegrass .10% (C)
		Windgrass 158 (C)
		Tansy 24 (C)
		Shepherds Purse 180 (C)
		Pigweed 68 (C)
		Small Seed false flax 20 (C)
		Henbit 10 (C)
		Peppergrass 4 (C)
		Ventenata Dubia 6 (C)
		Fine Fescue 4 (C)
		Black Medic 20 (C)

Note: The (A) classification represents uncontrollable seeds in the sample; the (B) classification is controllable; and the (C) group represent no problem.

grass and certain noxious weeds.

At first glance, these standards appear formidable. But, they do not include a requirement that other crop seed be listed.

Agencies producing and promoting certified seed recognize the inadequacy of the one gram seed sample results. They require 25 gram tests to ascertain whether seed is free of certain weeds such as quackgrass and wild garlic. But neither the government nor certification agencies require that other crop seeds be listed. The professional grower needs data on specific turf weeds and other crop seeds which may be in his seed lot.

Assume that a test shows one tenth of one percent crop seed and if that crop happens to be bentgrass, a factory lawn or a fairway could be exceedingly spotty. A 400-yard by 50-yard area would contain almost a million bentgrass seeds in the normal 200 pounds of bluegrass seed.

Or suppose the foreign crop seed is timothy, allowable in many states. A grower would be seeing a quarter million timothy seeds in the 400 x 50 yard lawn or fairway. In the case of tall fescue, he'd put down more than 50,000 seeds. These are examples. There are numerous others which need to be avoided.

Inert materials also need to be

labeled for protection of the grower — but the law requires only that the percentage by weight be listed.

Competent technicians and equipment designed to do the job are conducive to accurate testing. At these laboratories an electronic evaluator is used to count seed, a vibrator has been designed to direct seed past the technician for evaluation and to literally shake the small seeds such as bent from the larger seeds to which it often clings.

Most important today for the turfgrass seed user, based on the thinking of researcher Dale Kern, president and founder, is that turfgrass seed analysis must be tailored to the needs of the grower who wants his seed analyzed. This requires (1) more seed be tested; (2) better equipment be used; and (3) that more complete reports be made available.

Kern goes beyond these suggestions in his own evaluation of seed testing as now being done. He believes that much more emphasis must be placed on the specific weed and/or crop seed which is found in seed. Even the gold label seed which demands a premium price does not include on the label the specific foreign seeds. It provides only the label. This simply means that once the seed comes up the grower could find

a number of crop and weed seeds he did not expect and may not be able to readily identify. Some may be exceedingly harmful, and some be uncontrollable. Some could never be a problem.

For example, downy chess, nutgrass and speedwell are not restricted by law or agency standards, but present difficult management problems for the turfgrass professional. By contrast, windgrass, hairgrass, shepherds purse, and buttercup are also not listed as a rule, but at the same time do not offer major problems.

Only a more complete turf analysis report can forewarn the user, or aid in solving the problem prior to seeding. A grower must determine for his own area what his problem weeds are. Many which are big headaches in some areas (water fox-tail in Wisconsin is an example) may be minor nuisances in other regions.

No longer can the grower depend on standards set by outside agencies, Vern said. He must know his seed and identify his own problems. A complete turf seed analysis is his first step. This identifies foreign seeds in the lot. The second step is to be sure that any foreign seeds which are problems to him are not seeded. □