and 12-year veteran of the business. "Every yard of sod is cut to order. We can't afford the downtime of repairing forklifts or inefficiencies of forklifts that can't move through the beds."

One of the biggest problems on many Michigan sod farms is flotation of equipment — including forklifts — on the decomposed and decayed roots underlying the fertile, rich muck soil.

"When pallets are lifted and loaded on to flatbeds, a tremendous amount of clutching is required," adds Young. "There is slippage, particularly during the truck loading process, and without a torque converter, for example, a drive train might be lucky to last a month."

During the growing season, the pallet loading process might be in operation 10-12 hours a day or a total of 800 hours during a normal growing year. Without a forklift of the capacity and stability to get the job done, a sod farm might easily revert back to a swamp.

At the Halmich Sod Nursery, the answer was found in a two-wheel-drive, 63 horsepower forklift from Paty's, Inc., and built by Construction Equipment Division of White Motor Corporation. "It helps keep the nursery producing at capacity," said Young. "With a six-cylinder engine, we knew that the forklift was not under-powered and could be called upon to handle anything we might 'dig up' for it."

Bluegrass Insecticide Study Progress Report Presented

Insecticide use failed to stop development of brown seed heads in bluegrass seed fields during 1973 University of Idaho trials.

That was one of the findings in a preliminary progress report by Roland Portman, UI state entomologist who headed up the insecticide trials.

Insecticides used were Furadan, Dylox, Meta-Systox-R, Orthene, Dursban and Cygon. Two application rates were used—one half and one pound actual material in about 80 gallons of water per acre.

The first treatment was made April 18. A second set of plots was treated May 5.

Counts of brown seed heads, made June 12, revealed insecticide treatments failed to prevent brown seed heads. Sixteen of the 48 treated plots had more brown heads than did adjacent untreated field areas.

At this point, cause of the blank brown head condition in bluegrass seed fields is unknown.

The condition is characterized by a withered stem above the top node and a brown blank seed head. Brown seeds heads occur more often in fields of common bluegrass than in fields of patented bluegrass varieties.

Another condition, although not serious in Idaho but found in the state, can also reduce bluegrass seed yields.

It is silvertop, caused by grass bugs and grass thrips feeding.

Grass bug-caused silvertop is accompanied by a beak puncture through the seed stem sheath leaf into the seed stem. The stem above this feeding puncture is withered and distorted. The seed head is a silver color.

Grass thrips, found throughout Idaho, enter the upper sheath and feed on the developing spikelets while grass is in the boot stage. The pedicel and florets beyond the feeding injury turn silver or white. These florets are seedless.

The economics off silvertop injury has not yet been evaluated in Idaho.

Portman said that in an associated study dealing with insect and bluegrass seed production relationships, post-narvest burning of seed fields killed almost all insects. Surviving the burning were larvae of wireworms, sod webworms and some cutworms—all soil inhabitants.

Grass sod core samples collected in burned bluegrass seed fields from March until mid-April showed an absence of insects. Sample from the roadside showed ants, thrips, weevils, springtails, plant bugs, cutworms and leafhoppers were present.

Sweeping samples taken in mid-April showed that leafhoppers had moved back into the seed fields.

Grass Production Practices Urged To Reduce Pollution

Ensign called on plant breeders and seedsmen to look for grass varieties which have low burn requirements. "Hopefully, some may exist," he said.

Some growers are increasing width between drilled rows beyond 12-14 inches at seeding time. Under some conditions this may sustain seed yields in a short term rotation better than the closer spacing, the plant breeder stated. Thus, thatch build-up is not as rapid.

It was suggested growers burn residue from bluegrass seed fields during early August. Ensign reasoned that this is the time when residues are usually driest, combustion levels are high and the expected pollution index lowest. However, burning may have to be delayed if conditions are hazardous for nearby fields and forests.

Another reason for early burning is that resulting seed yields are higher than for late burning.

A University of Idaho plant breeder has suggested ways to reduce air pollution caused by burning fields in the production of grass seed.

Dr. R. D. Ensign told the Intermountain Grass Seed Growers in January that one way might be to burn fields every other year where grass varieties permit. He noted that some varieties "need burning more than others to sustain yields."

Short term bluegrass stands, those from four to five years old, may not need annual burning which is required to get rid of heavy thatch in older stands, he said.

New Chemical Promises Control Of Johnsongrass

showed that glyphosate leaves no soil residue. The research found that:

—To be most effective, glyphosate should be applied in mid-summer when Johnsongrass plants are fully mature. Temperature is a fairly critical factor; best results occur when spray applications are made in a temperature range of 60 to 80 degrees F.

Roundup has not been registered for use by EPA.

Agricultural research workers at two Middle Atlantic agricultural experiment stations have achieved still another calibration mark for zeroing in on an effective control program for Johnsongrass.

At the fourteenth national meeting of the Weed Science Society of America, Dr. James V. Parochetti, associate professor of agronomy at the University of Maryland, reported on promising results obtained in a 3-year study with glyphosate (Roundup), an experimental foliar systemic herbicide.

Studies were concentrated on the Eastern Shore areas of both Maryland and Virginia in cooperation with Dr. Gordon W. Burt, fellow agronomist at the University of Maryland, and Dr. H. P. Wilson, plant physiologist for the Eastern Shore branch of the Virginia Truck and Ornamentals Research Station at Painter, Va.

Results of the research effort