


*Above: special aerial bucket carries enough seed for eight acres. Right: an altitude of 45 feet with a speed of 45 miles per hour yields a swath width of 45 feet.*

# Over seeding by helicopter

## a case study

*When Landscape Contractor John Perkins learned of an erosion control job for over seeding on I-35 in Iowa, he decided to go after it. He also decided to use a helicoper. Here is his first-hand step-by-step report on this successful project (from a presentation at the August Denver Symposium of Associated Landscape Contractors of America).*

For some years, the Roadside Development Section of the Highway Commission, as it was known before it became the Highway Division of the D.O.T., had used a stabilizing crop seeding on newly graded secondary, primary and interstate highways.

This seeding consisted generally of Winter Rye and Ky. 31 Fescue in the spring, Sudan grass in the summer, and Winter Rye and Hairy Vetch in the fall. In addition all areas not seeded by Sept. 30th were either rough disked, disked or mulched, with the mulch tilled into the soil with a mulch tiller and left over winter. This would put the areas in shape for over seeding in the spring.

Iowa has for many years practiced the over seeding of legumes in the spring into areas which had been fall seeded with grasses. This was usually done with the hand Cyclone seeder. So Iowa was well organized when the D.O.T. decreed not more than 750,000 square feet could be disturbed with one grading spread before some method of soil stabilization had to be followed.

Previously when we moved onto a seeding project in the spring, we were required to disk or till up all the growth from the stabilizing crop of the previous year. Then it was suggested that if the grass and legume seed could be applied in early spring, it could be seeded directly into existing mulch without further manipulation of the soil. This would provide about six to eight weeks longer for the growing season.

The Highway Commission began letting erosion control contracts with provision for early spring over seeding of certain areas which had been seeded with stabilizing crop the previous season. The specs read: "Seeding shall be performed between March 1 and April 15, while the soil is friable and subject to freezing and thawing action."

One of the projects in the letting for the fall of 1970 was an erosion control job that called for early over seeding of previously stabilized areas on I-35 in southern Iowa. It looked like a project that would fit our organization but I knew it would be virtuously impossible to depend on conventional equipment for the spring over seeding. Then I thought about using a helicopter.

I found an operator who was interested, but he would have to purchase a $2000 aerial bucket. We then had to work out from the volume of the bucket how much seed he could carry by volume and weight to find out how many acres he could cover in each trip. We worked out a tentative price per acre and I eventually was awarded the project.

In Iowa the contractor supplies everything required to perform on the project — equipment, labor, seed, mulch, inoculation and fungicide. The specifications provide that legumes must be applied within eight hours of inoculation, that a fungicide be applied to all seed, and that a sticking agent be used to make the fungicide and inoculation stick to the seed. This means the seed must be mixed on the job. Contractors had been using a large auger wagon for this mixing operation and this seemed satisfactory.

Since the contractor is responsible for the entire operation, he must make arrangements with the aerial operator who supplies the plane or helicopter, the pilot and usually one man on the ground with a pickup containing maintenance equipment, fuel and a two-way radio. The

*Proper altitude and speed are essential for even seeding.*

pilot is the key man. The contractor should review the project with the pilot together with the on-the-job representative of the contracting authority.

The pilot must cover the area designated for each seed load and he must do this while flying at the proper altitude, which from our experience is 30 to 45 feet. He must travel at the proper ground speed, about 40 to 45 miles per hour. The width of the swath seeded will vary with the altitude and ground speed. With the figures we mentioned, the swath will be 40 to 45 feet wide. There will be funneling and streaming of the seed if the speed is too fast. For best results the wind should not be over 10 m.p.h. and not gusty.

This means you might wait several days for proper conditions, or get underway and be forced to shut down. There are always variables, but with aerial seeding you can cover 30 to 50 acres an hour.

Another consideration is whether to use a helicoper or fixed wing plane. Our experience is only with a helicopter. It can land in tight quarters, it can get into smaller areas, go up and down over obstacles easier, and doesn't need a runway.

A helicopter or small plane can carry enough seed for eight acres. We normally stake out two eight acre plots so that the pilot can calibrate his seeding equipment and then the balance of the project into 32 acre plots to give him some guidelines as the work progresses. To be sure the coverage is 100 percent, the seeder can be set at one half rate with two passes made over each area.

Safety is important. The contractor, the contracting authority representative and the pilot must drive through the job and note all obstacles such as high lines, bridges, trees, and even fences. Some may need flagging.

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The ground crew handling the seed needs to be aware that if you challenge a turning rotor or propeller you always come out second best. In order to get production, the engine must be kept running, the rotor or propeller turning, and the seed hopper filled in very close proximity.

Be sure your aerial operator is insured for liability, property damage, etc., to cover his operation while he is on your project.

In the years 1971 through 1975 in Iowa there were 352 miles of roadway consisting over 9611 acres that were over seeded. The State estimates the savings to be $1,897,-742, mostly generated by the saving of tillage, and by not applying mulch on the over seeded area.

Some contractors may think that with less dollar volume, their profit is taking wing along with the helicopter. I believe there has been enough work added, such as ditch work, to more than make up the difference. The opportunity for profit is still there for a well-managed. outfit. □