Editor's Note: The Willamette Valley of western Oregon has become established as the center of world grass seed production, and herbicides are recognized as the best, most complete and least expensive route for keeping weeds out of seed. Choice of herbicide, time of spraying, rate of spraying, soil moisture and method of application spell success or failure for the grower.

Back of the grower, however, are new ideas and trials of investigators such as Dr. Orvid Lee of the USDA stationed at Oregon State University in Corvallis. In the following interview, Dr. Lee responds to some timely questions on grass seed output and development.

Q. There has been dramatic progress in Oregon's $30 million seed industry in the past 25 years. Research-wise, where are we now?
Dr. Lee: Growers and seed companies have the basis for still more progress. We can identify seed industry needs better today and we have the capacity to undertake joint programs to meet those needs, with a very large reservoir of know-how among the growers.

Q. How would you summarize research progress and industry progress?
Dr. Lee: In a single word it is precision. We have always had a target, for example, of growing seed that is free of weeds. But we have been able to raise our standards through new techniques that are increasingly precise. Herbicides have played a key role in these techniques.

Q. Can you be specific?
Dr. Lee: Well, we have half a dozen different herbicides, and most seed growers have learned how and when to use them. Two new ideas in the past few years are the chemical seed bed and charcoal seeding. Both are designed to establish seedling grasses that are completely weed-free.

Q. How are these ideas applied by a grower?
Dr. Lee: When the chemical seed-bed technique is used, the grower prepares the field for planting in the fall. Weeds and volunteer crop plants which germinate during the fall and winter are controlled by spraying with 2,4-D and IPC or with paraquat. The crop is then planted early in the spring without additional tillage. Since most of the troublesome weeds germinate during the fall and winter they are eliminated from the surface soil before the crop is planted. When the charcoal banding technique is used, activated charcoal is sprayed in a narrow band over the crop row at the time of planting. The field is then given a broadcast application of Karmex diuron. The activated charcoal over the row absorbs the diuron protecting the crop plants planted beneath it. The result is a grower can more easily meet his responsibility of producing weed-free seed.

Q. What kinds of grasses are these ideas used for in Oregon?
Dr. Lee: Growers here now produce 100 percent of the nation's annual and perennial ryegrasses, more than 99 percent of the bent grasses, 99 percent of the chewing and creeping red fescues, and about 72 percent of the orchardgrass. If you include Washington and Idaho, we also produce over 90 percent of the bluegrass. Altogether there are at least 1,000 growers of seed in the area, where there is a rather unique combination of climate and soil conditions that are ideal for seed production.
Q. Are new seed varieties de-
veloped here?

Dr. Lee: Yes, but our real con-
tribution is our ability to mul-
tiply seeds that are developed
elsewhere. We increase breed-
er seed more efficiently than
anywhere in the world, and
seed companies turn to Ore-
gon growers to meet specific
demands for their new varie-
ties.

Q. How does your work tie in
with the new varieties of
seed?

Dr. Lee: My function is to help
keep contaminants out of the
seed. By this, I mean weeds
and unwanted crop grasses.
Seed companies are now going
direct to the growers to mul-
tiply their new seeds. We have
to keep ideas and know-how
flowing to the growers, so they
can meet their seed contracts
on the new varieties. With
about 40 trials and tests un-
derway every year, many on
growers’ fields, we are able
to generate a lot of under-
standing rather quickly.

Q. Does this apply to how grow-
ers use herbicides?

Dr. Lee: It certainly does. Split
applications of Karmex, for
example, have been found use-
ful in fall and winter, when
we get most of our rains. But
we have found it necessary
to adjust the rates, depending
on specific grasses that are
being grown. A grower must
learn this, and field trials are
a great teaching tool . . . as
well as a learning experience
for any investigator.

Q. What kinds of tolerances does
a grower have to meet?

Dr. Lee: When it comes to weeds
and contaminating crop seed,
his must have 100 percent con-
trol or he is penalized on price.
A decade or so ago, a grower
was permitted 3 percent an-
nual bluegrass in certified
seed; today annual bluegrass
seed cannot exceed 0.30 per-
cent in certified seed. In some
states today the tolerance for
annual bluegrass in seed is
zero. A grower can usually
earn a seven to ten cent or
more per pound premium for
weed-crop-free seed — that’s
a very worthwhile target.

Q. How has all this affected his
use of herbicides?

Dr. Lee: Where a grower was
once concerned with establish-
ing his crop first and then
eliminating the weeds, now he
is working to keep the weeds
and unwanted grasses out of
his seedling crop right from
the start. That’s where the
chemical seed bed, the char-
coal seeding with Karmex,
split applications and alter-
nate applications of herbicides
all fit in. Our growers are
combining these ideas.

Q. What is the most critical peri-
od, when it comes to herbicide
use by a grower?

Dr. Lee: Getting a clean grass
seed crop established is the
most sensitive part of his op-
eration. His first responsibil-
ity, of course, is to plant clean
seed on clean land. Then he
must keep weeds out as seed-
lings develop — this can be
difficult.

Q. What kinds of gains have
growers realized through new
herbicide programs?

Dr. Lee: The chemical seed bed
concept provides a good ex-
ample. Prior to 1965, a 20-30
percent failure in stand estab-
lishment was normal. The loss
stemmed from competitive
grasses and weeds. But this
loss has been sharply reduced
— especially on flat areas,
where the new techniques can
be employed. Use of the chem-
ical seed bed or charcoal seed-
ing has already established
new standards in getting a
crop started.

(continued on next page)
Q. What kinds of problems do growers face today?

Dr. Lee: One is the possible application of new regulations that will limit a grower’s opportunities to try new compounds and new techniques. The grass seed grower is in a key role, when it comes to the environment. His crop is needed and wanted by the turf and forage industries, but he must have a measure of flexibility in herbicide use to be able to deliver seed. If we limit this flexibility, we cannot look for the quality seed that we have come to expect.

Q. Is the seed grower aware of this situation?

Dr. Lee: Many are not. They are accustomed to precision application of herbicides; they understand risk-benefit ratios in these applications. If broad spectrum herbicides or long-lasting herbicides were suddenly banned, a grower would be handcuffed in his program to deliver weed-free seed. The trend to eliminate some of the residual herbicides should be a matter of concern not only to seed producer and turf producer — but also the consumer who wants a weed-free lawn. Without these products, we could not keep the U.S. green and there would be no export of grass seed, which today is a flourishing, useful business.

Q. Any other problems on the horizon? What about Oregon’s proposed ban on field burning of straw, after a crop is harvested?

Dr. Lee: This ban, now scheduled for 1975, has cast a shadow on the entire seed industry in the state. Quality is going to be a problem. Burning now helps to destroy most of the weed seeds in a field and creates conditions which are favorable for herbicide activity. It also helps control disease and provide a means of disposing of crop residues. Seed growers have depended on field burning as a basic cultural practice. There is work on a mobile incinerator to make it possible to continue burning with much less smoke. We are exploring concepts for alternating crops in vegetable areas, but as of now, we have no real solution. Field burning has been needed — it is still needed.

Q. How long does it take to introduce a new idea to seed growers?

Dr. Lee: Four or five years are usually involved. We started our initial studies on charcoal seeding, for example, back in 1967; we have had a label on the idea with Karmex for two years, and much of our current program is still involved with this technique. The practice is quite widespread in Western Oregon, but it is still being developed east of the Cascades.

Q. What, then, are basic resources of the seed industry?

Dr. Lee: It comes down mostly, I think, to people. The industry is a complex one that uses a wide range of techniques just to control weeds, for example. In Western Oregon, we have a unique combination of physical elements, but we also have the people who have learned how to use these elements and their know-how is irreplaceable, when it comes to growing seed on 275,000 acres of land. The same situation applies in Central and Eastern Oregon, where another 25,000 acres of seed are grown each year. Our growers have a vast amount of experience in seed production. It is an extremely valuable resource.