Farmers expect numerous and varied, but not impossible, things from the seedsman. Expectations of each farmer are dependent mainly on his managerial ability. Managerial ability is to be considered one of the most important characteristic of today's successful farmers.

A high level of managerial ability has not always been a characteristic of the American farmers. One indication of poor management was that farmers previously expected very little from the seedsman because the farmer lacked interest in seed quality.

With the farmer, homegrown seed (uncleaned and untested) has all too often been the rule rather than the exception. Purchasing seed seemed unnecessary. But times are changing rapidly.

This earlier farmer occasionally picked up seed of a new variety from the seedsman. The farmer often talked about high quality seed but never bought high quality seed. He wanted variety purity, but not if it meant paying a few cents more for certified seed. He wanted clean seed, but could get along with a few weed seed if clean seed cost more. In short, he talked about quality, but was never willing to pay the price for high quality seed. And sadly, he never really knew or enjoyed the benefits of good seed.

Furthermore, he failed to make pressing demands concerning seed quality. He frequently complained about the seedsman getting rich at the expense of the farmer. He smiled and boasted about homegrown seed if by chance he got a good plant stand, but he condemned everyone and everything, but himself, if he had a stand failure. Hopefully, we are completing this era of mismanagement and misunderstanding by so many farmers.

Many of these careless farmers are no longer farming. Their farms have been sold to better informed and more progressive farmers. The more progressive farmers are often young and well educated. These farmers have up to date managerial ability, and they are interested in using the practices that will make farming a profitable business.

Consequently, the farmers of today are turning theory into practice. They are willing to pay the price for high quality in order to obtain outstanding results. Most of these farmers are as adept in

---

1/ Mr. Sullivan is Extension Agronomy Specialist, North Carolina State University, Raleigh, North Carolina.
business practices as are the seedsmen with whom they deal. This is
the kind of farmer that the "seedsmen of the 70's" must be able and
willing to serve.

Farmers demand good seed:

As a matter of fact, the commercial farmers of today are beginning
to demand good seed from the seedsman. Yes, demand good seed. They
realize the need to use each proven practice in order to make a profit at
farming. They know that good seed quality is one of those profit-proven
practices. It is no accident that all the national winners in a 1969 soy-
bean production contest used certified seed. In North Carolina, the top
five soybean producers planted their crops with certified seed.

Farmers are beginning to realize the loss that results from using
low quality seed.

"From a North Carolina county agent came this experience. A man, who on a 30 acre corn field got only an 80 percent
stand because of poor seed, reckoned his cost this way. He lost the equivalent of six acres on which he was out
$90 land use, $54 in mixed fertilizers and $72 in nitrogen,
$18 worth of seed and $235 for labor and machinery. The
total averages $78 per acre on the six acres. Averaged over
30 acres, it still comes to over $15.60 per acre. This
he charges to carelessness in the purchase of seed, the
least costly item of all."

At one time, farmers were more concerned with what seed became
than what seed were. Farmers were interested in production from plants,
not realizing that the productiveness of each plant is often limited by
the quality of the seed.

However, farmers today are no longer willing to accept any lot of
seed that is available at the market place, regardless of the quality. Our
commercial farmers are beginning to place special demands upon the
seedsman. The fact that farmers are willing to pay the price for seed
guaranteed to be good should provide a fresh impetus to seedsmen to
supply even higher quality seed. Getting by is no longer an accepted
practice in buying and selling planting seed.

Zero defects:

You can be assured that farmers will be placing more and more
precise demands upon the seedsman in relation to seed quality charac-
teristics that are currently important. High germination, low weed seed
percentage, varietal purity, and other quality characteristics are becoming increasingly important to the farmer. Within a few years farmers will be demanding quality levels and quality protections that are rare today. They will be looking for "zero defects" when they are choosing seed.

Experience has shown that many seedsmen are not as interested in placing top quality seed on the market as they are in meeting minimum standards. Such seedsmen make no real effort to strive for "zero defects". They have been happy to supply just what the law permits or what they were able to peddle. Unfortunately, such seedsmen have remained in business by making farmers price conscious rather than quality conscious. But times are changing.

An article by Dr. Delouche in the January, 1970 issue of "Seedsman Digest" stated, "molecular biologist can selectively separate the components of the cell, but we can't always separate weed seed from crop seed. Instrumentation in a satellite can differentiate between highly productive and poor fields of wheat, or diseased and healthy fields from several hundred miles in space, but we can't distinguish between vigorous and non-vigorous seed, or even dead and viable seed under a microscope at less than an inch without using elaborate tests that require hours of time." Some of these things we are able to accomplish, but we are reluctant to enter new programs of seed evaluation.

The reason that some of these things are not being used is that the final user, the farmer, has not yet organized so as to make unmistakable demands for such high quality. Thus, the seedsman has not given the desired incentive to market seed which approach "zero defects".

However, the seedsman may soon find that it is necessary to change the procedures used in harvesting, processing, and marketing seed. Farmers are demanding procedures that do not excessively reduce the quality of the seed. We are not yet knowledgeable of all the changes that will be required, but we have the technical ability in several areas to reduce seed damage. The practice of cleaning and processing at harvest time, for example, is usually less damaging than the same cleaning and processing after a storage period.

Consequently, the practice of the seedsman to produce seed at the lowest possible cost without regard to quality is being outmoded. It is true that the price conscious farmer and competition from "run-of-mill" seedsmen has forced many quality conscious seedsmen to market substandard seed.

Quality conscious farmers will reverse this trend. Quality will become the dominant factor rather than price. Price will be important, but the businessman-farmer of the 70's will be able to place each in perspective. The seedsmen of the 70's should already be striving for "zero defects".
Demands for varietal purity:

Seedsmen have the responsibility to provide the farmer the best in adapted varieties. The farmer expects such seed to be truthfully labeled. Certified seed will have an increasingly important role in assuring the farmer of genetic quality.

Some people expect a deluge of new varieties with passage of the "Breeders Rights" legislation. This is going to place here-to-fore unknown pressures upon the seedsmen. Can the seedsman afford to depend solely on the statement of a producer-supplier as to variety of a seed lot? Certainly, the certification program for varietal purity has to be an important part of each seedsman's quality control program. Seedsmen who market uncertified seed will need an inspection program that will guarantee varietal purity. Farmers are going to demand it.

Plant breeders are developing and releasing varieties that have a specific final use. For example, you may have heard discussions concerning high lysine corn. Also, recent articles have indicated that a particular variety of sorghum may have a higher food conversion in feeding animals than other varieties. Several cotton varieties are available which have superior fiber characteristics. As varieties become more specific in product use, farmers will demand that more attention be given to variety purity. Thus, the demand for certified seed will increase.

A one-variety gin program is now operating in North Carolina and many other southern states in cotton seed production. This program of pure seed production is under the supervision of crop improvement officials. A ginner contracts with cotton producers in his area to produce a specific variety of cotton on a farm unit. At harvest time, the ginner accepts only the agreed upon variety of cotton for ginning. The problem of contamination by other varieties during ginning is thus eliminated. Perhaps other crops could be more pure if one-variety production areas were utilized. Naturally, there are certain hazards associated with one-variety areas. A poor production season or natural calamities may limit the supply of seed.

The one-variety gin idea has carried over into the marketing of the lint, also. In North Carolina, for example, a verified cotton variety producer program permits identification of the lint by variety. Thus, the lint user is able to purchase large lots of cotton by variety. The spinner utilizes his knowledge of variety fiber characteristics in deciding which variety his plant will most satisfactorily process.
Participants in the one-variety cotton program are required to use foundation, registered, or certified seed. They carry out a cultural program designed to produce uniform quality. These farmers plant only one variety of cotton on a farm unit in order to maintain physical separation of varieties. Such a program is of enormous merit and its workability is based on variety purity.

Seed companies with plant breeding programs may become involved in the marketing of commercial crops. Such a marketing program may prove to be beneficial to the farmer and the seedsman as varieties with specific end uses are developed.

The point of this discussion was to stress the importance of varietal purity. We have seen contamination of soybeans with crotolaria species. We are entering an era when contamination by other varieties is becoming of increasing concern.

Demands for seed uniformity:

Precision planting of today places a considerable burden upon the seedsman. Farmers are looking for once-over planting that results in adequate and uniform plant stands. The vegetable producers have led the way in demonstrating the need for uniformity in seed. Stand uniformity is especially important in today's vegetable production programs.

Therefore, farmers will expect precision grading of seed in order to insure uniform field emergence. Uniformity of size and shape in seed is important if precision planting techniques are to be developed. Even more important and more difficult to obtain will be acceptable uniformity in germination and vigor. Only recently have farmers begun to place a high priority on the importance of seed vigor.

F-1 hybrids are helping in our efforts to obtain field uniformity in plant growth, maturity and quality. Seed tapes and other mechanical devices aid in uniformity of stands. Perhaps breeding programs will be reoriented so as to help us obtain uniformity in seed size, shape, vigor, and overall quality.

One aspect of seed uniformity relates to uniformity within a given seed lot. Farmers deserve and expect seed lot uniformity. The farmer often finds that a few bags of seed from a supposedly uniform lot are substandard in germination or contain excess contaminants. Such non-uniform seed lots result in poor uniformity in the field. The farmer has trouble solving the riddle of poor plant stands in small areas of the field. Therefore, farmers expect seedsmen to improve their methods of producing and processing to provide uniform seed lots.
At a recent annual meeting of the North Carolina Crop Improvement Association, George Spain (Director, Seed Testing Division, N. C. Department of Agriculture) discussed representative sampling and seed lot uniformity. He stated that the accuracy of quality statements on the analysis label is highly dependent on accurate and representative sampling. He also stressed that the statement of quality is never absolutely factual but is only an estimate based on probabilities.

Most farmers expect and believe such estimates as those on the label and to purchase seed according to the information provided. We all agree that this is the best information available, but efforts should be made to improve the accuracy of information on the analysis label.

Furthermore, Mr. Spain pointed out that a 200 bushel lot of soybeans contains approximately 38 million seeds. An official germination test is made on 400 seeds from the seed lot. This requires a quality projection in the magnitude of 96,000 to 1. Two seeds are used to estimate performance in an acre of planted soybeans. A germination test from a 200 bag lot of tall fescue requires a quality projection even in the magnitude of 5,000,000 to 1.

Representative sampling must be a planned part of each seedsman's quality control program. The farmers expect seedsmen to identify correctly the quality characteristics of a seed lot.

Farmers want more information:

Farmers expect the seedsman to take advantage of new techniques that may provide additional information about seed quality. Considerable research effort has been devoted to developing tests to estimate seed vigor. Dr. R. P. Moore of N. C. State University has been a leader in developing the tetrazolium test for measuring seed vigor. Other researchers have promoted other vigor testing methods. Vigor tests are sound and workable, but seedsmen have been slow to provide vigor information to the farmer. Some seed companies have their own vigor testing programs, but little or no effort has been made to indicate vigor on analysis labels.

It has been estimated that 6 to 7 billion people will inhabit this earth by 2000 A.D. Farmers will have to take advantage of all technology in order to produce the food and fiber needed. Seed vigor is becoming one facet of technology of extreme importance.

Seed of high vigor can be planted earlier and thus extend a limited growing season. Vigorous seed will be needed in double cropping systems so that the second crop grows rapidly. Seed of uniform vigor will provide additional plant uniformity that will aid in precision harvesting.
In his inaugural address, President Johnson made the statement "Harvest sleeping in unplowed ground." He was referring to unused human abilities.

We can think of this statement in relation to seed. How much harvest is lost because seeds of low to average quality are used? What is the magnitude of the "harvest sleeping" in unused seeds of superior quality?

A 1969 peanut field test in North Carolina showed the importance of seed vigor. Samples from over 100 different seed lots were planted in field plots. Seed lots that gave the quickest emergence in the field also produced the highest yields at harvest times.

Farmers are becoming more knowledgeable about seed and seed quality. Before long, farmers will demand a seed testing program that measures more than one (germination) of the many important characteristics of seed life.

Changes in cultural practices:

We continue to hear about high density planting and the changing shape of the corn plant, the cotton plant, and other species. How will such changes affect the need for high quality seed?

Perhaps our first impulse is that with so many plants, the importance of a single seed is lessened. However, close examination reveals that seed quality will be even more important. In many crops, our plant breeders are developing varieties that are more determinant in fruiting habit. We're speaking of such things as cotton with a maximum of three bolls. Such determinant varieties will not have the ability to compensate for missing hills. Today, many of our varieties will compensate for missing plants by heavier fruiting on plants adjacent to the skip. Varieties with determinant fruiting will be less able to compensate.

Seed quality will be even more important with high density planting. If a farmer gets only a 90 percent stand, he immediately loses ten percent of his potential yield. Each seed must produce a plant which will contribute a small, but important part to total production. High density planting will make it easier to show an economic return from good seed.
Attitude changes:

The farmer today is dressing up and going uptown. He will soon be demanding additional cleanliness around seed processing plants and in seed stores. The farmer's personal values and attitudes are changing. Seedsmen must add eye appeal to their processing operations and add eye appeal to their product-seed. This must be accomplished while maintaining or even upgrading high levels of seed quality.

Seedsmen and farmers of the 70's will establish a more personal relationship among themselves. There will have to be mutual efforts and benefits if the farmer and the seedsman survive. Each will have an important task in supplying this nation and world with adequate food.

The seed producer:

The farmer expects the seed producer to be a professional. Producers who decide at the last minute to convert feed into seed are unacceptable. The seed producer must continue to gain additional knowledge that will help in producing high quality seed.

The seed producer has the potential of being the most important individual in supplying high quality seed. Farmers expect seed producers to be proficient in the technical aspects of seed production. Seed producers will have to become more specialized and quality conscious if seed quality is to be upgraded.

Many seed producers are currently not concerned about the use of the product they produce. They think of it only as another crop. Our agriculture has given the highest returns to quantity rather than quality. Therefore, the seed producer has not shown an adequate interest in quality. This is changing as more and more seed growing contracts are being used by seedsmen. To be able to sell his production, the seed grower has to produce seed which meet specific contract requirements.

In addition, the seed grower must accept the responsibility of producing variety pure and weed free seed. He is the first link in maintaining variety purity and physical quality. The managerial ability of most seed producers is good, but improvements, with emphasis on quality, can still be made.

The farmer expects the seed producer to become less involved in speculative merchandizing and more intent on producing a quality product.
The seedsmen:

Seedsmen can be classified into several categories; namely, (a) the breeder-grower-merchandizer, (b) the grower only, (c) the wholesaler and (d) the retailer. The basic responsibility of each seedsmen is to provide high quality seed of the right variety in the proper quantity at the appropriate place and time. This is not an easy task when you consider the crops and varieties available.

The "1970 Directory and Buyers Guide" of the Southern Seedsmen's Association list about 75 field crops and over 400 varieties. This does not include corn hybrids, cotton, tobacco, and rice varieties, and sorghum and sorghum-sudangrass hybrids. Therefore, it is not an enviable task to have the right variety at the right place and time.

Truthfully, the farmer many times expects more from the breeder-grower-merchandizer than from wholesalers and retailers. Ultimately the responsibility for seed quality is placed upon this seedsmen. Farmers expect these companies to continually supply better varieties which are tailor-made to meet the specific needs of certain regions. Many farmers believe that seed from name-brand seedsmen are always higher in quality than non-name-brand seed. Therefore, the breeder-producer-merchandizer must accept the responsibility to produce and market high quality.

Seed wholesalers and retailers are primarily merchandizers. Seed may be only one of many items sold. These seedsmen are less involved in the production and processing of seed. Therefore, wholesalers and retailers must make special efforts to keep up to date.

Farmers do expect these seedsmen to keep up to date, not only with the improved varieties, but with performance information on each variety. The seedsmen is an important source of information for the farmer. The seedsmen is expected to supply the seed and reliable information on cultural practices for producing the crop.

Seedsmen of the 70's:

The successful seedsmen of the 70's will be those who can best meet the demands of the farmers. Such seedsmen will supply the best varieties of pure and vigorous seed in uniform seed lots. Such seedsmen will strive to supply seed with zero defects and to provide reliable production information.
What kind of quality will be demanded for the first seed that travels to the moon? Can we afford to take along a few weed seed, a varietal mixture, or a few non-germinative seed? Seed with "zero defects" will be required for this quarter of a million mile trip. Such seeds are also needed on earth by farmers who want to "blast off" for maximum profits.

If you are a seedsman that could routinely supply these first "moon" seed to NASA, then you are a seedsman of the 70's. Such high quality is an indication of the kind of demands the farmer will place upon the seedsman of the 70's.