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Successful Quality Assurance

SUCCESSFUL QUALITY ASSURANCE

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A discussion on quality assurance should begin with a clarification of the term **Quality Assurance Program.** The American Heritage Dictionary gives these definitions for the following words:

Quality: A characteristic or attribute of something, the natural or essential character of something, degree or grade of excellence.

Assurance: A statement or indication that inspires confidence, freedom from doubt, certainty.

Program: An organized list of procedures. By combining appropriate aspects of these definitions, a quality assurance program, as it applies to the seed trade, could be defined as an organized list of procedures which inspires confidence in the superior character of the seeds being sold. Certain aspects of this list of procedures are essential in achieving a successful quality assurance program.

Over the years, an effective quality assurance program has become of increasingly greater importance to the seed trade. The various reasons for this can be grouped into two categories: performance and litigation. The sales axiom that good performance equates to satisfied customers equates to repeat business, also holds true for the seed trade. A customer has four main expectations of a seedsman's products. The package should be attractive and not look as if it just experienced Hurricane Helen. The appearance of the seeds should be acceptable when the customer opens the bag. The customer expects good, uniform emergence when he plants the seeds. He also expects competitive yields at harvest time. If a customer is disappointed in any of these four expectations, he is a dissatisfied customer. The seedsman can ill afford a dissatisfied customer because his potential customer base is shrinking. Data from the 1985 publication of Agricultural Statistics indicate the number of farmers decreased 9.4% between 1975 and 1985 (Table 1). The depressed agriculture economy may accelerate this downward trend.

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Table 1. Farms in the U.S.A.

1975	1985	% Reduction
2,521,420	2,284,630	9.4%

Table 2. Planted acreage in millions of acres.

	1984	1985	1986	1987
Corn	80.4	83.3	76.6	?
Soybeans	67.7	63.1	61.8	?
Cotton	11.1	10.7	9.7	?
Rice	2.8	2.5	2.3	?

Not only is the number of potential customers decreasing, but the acreage is decreasing for many of the major crops (Table 2). Corn acreage dropped 8% from 1985 to 1986. Projections for 1987 indicate a possible drop of an additional 15%. Soybean acreage dropped 8.7% from 1984 to 1986, cotton acreage dropped 12.6% from 1984 to 1986, and rice acreage dropped 17.9% from 1984 to 1986. Less acreage means lower seed needs resulting in greater competition among seedsmen for a shrinking market. Consistent performance will be needed for a seedsman to maintain his marketshare. A good quality assurance program will help him obtain that consistent performance.

The seedsman also needs an effective quality assurance program to protect himself from litigation. The liberal posture the courts have taken in recent years has resulted in a dramatic increase in product liability suits of all types. The seedsman used to rely on errors and omissions liability insurance for protection. In recent years, however, the cost of that insurance has become prohibitive. An ASTA survey conducted in 1986 indicated that only 25% of the seedsmen carried errors and omissions insurance. A quick glance at Tables 3 and 4 indicates the reason. These tables represent actual figures on errors and omission insurance coverage from two different seed companies. From 1984 to 1985, coverage costs increased 833% in one case and 3000% in the other case. This occurred despite dramatic increases in the deductible. The seedsman needs to learn how to limit his product liability risk without the aid of insurance. Three good sources of information are articles in the November, 1986 and March 1987 issues of Seed World, and a publication available from ASTA entitled "Summary of Law on Seedsmen's Warranties and Disclaimers."

To reduce product liability exposure, a viable quality assurance program is essential. It will determine potential problem lots and remove them from the market. It will also develop the supporting defense data in the event legal action is taken. Lawyer James E. Hawes writes, "it is usually far less expensive to design and implement a program to limit product liability exposure than it is to litigate claims."

Essential Aspects of Quality Assurance

A number of steps are necessary to obtain an effective quality assurance program, but none is more important than the first step: A true commitment to high quality by upper management. The attitude upper management has towards their quality assurance program is quickly perceived by production, sales, and quality assurance personnel. A tough stance on quality results in greater commitment to excellence throughout field production and plant operations. Quality assurance people do their job more conscientiously. Sales people sell, and even handle complaints, with greater confidence.

Table 3. Errors and omissions insurance costs - Company A.

Year	Coverage	Deductable	Premium
1984	$1,000,000	$5,000	$30,000
1985	$ 500,000	$100,000	$125,000

Table 4. Errors and omissions insurance costs - Company B.

Year	Coverage	Deductable	Premium
1984	$20,000,000	$25,000	$176,398
1985	$1,000,000	$100,000	$280,000
1986	$1,000,000	$250,000	$330,000

Table 5. Categorizing test results.

Category	Definition
A	Untested
B	In Test
C	Passed All Tests
D	Minor Quality Problem
E	Major Quality Problem
F	Non-usable Seed

If upper management takes a soft stance on quality, no quality assurance program is effective. The production people will do their job only good enough to "get by." Quality assurance people will not do their best work, because decisions will be overruled by upper management anyway. Sales people will sell with less enthusiasm for fear of product failure. They begin to assume product failure when handling complaints resulting in high claims losses as well as lost sales.

Once upper management has committed to high quality, the second important step in the process is developing Written Quality Standards. Upper management must be willing to draw the line between acceptable and unacceptable seed quality. This sets the goals field production and plant operations personnel must achieve. This also sets the standards against which quality assurance people can compare their test results. These standards should be as comprehensive as possible and include limits for such things as purity analysis, germination, genetic purity, moisture content, stress tests, and other important aspects pertaining to specific crops.

Once the written standards have been completed, the next important step is to inform key personnel. Field production people need to be aware of the company's expectations for their seeds. They need to know that failure to meet those expectations will result in rejection and loss of premiums. The plant operations people also need to be aware of the company's expectations of the finished product. Failure to meet those expectations will result in re-working, loss of product, or possibly loss of job. Educational opportunities should be offered to these individuals to gain the skills and understanding necessary to fulfill their job responsibilities with the greatest effect. Grower meetings could include information on fertilization, plant population, herbicide usage, correct harvesting and handling procedures. Conditioning personnel should receive information on correct usage of equipment, correct sampling procedures, labeling instructions, and efficient warehousing techniques. Quality assurance people should receive instruction on new tests, improved testing procedures, or new testing equipment.

The foundation is now in place to support the next important aspect of a viable quality assurance program which is an effective testing program. This program should include four main types of testing: preliminary testing, finished product testing, carryover testing, and field testing. Preliminary testing involves the evaluation of raw seeds as they are harvested. The intent is to determine whether the seeds are acceptable for conditioning, determine any special problems which need to be addressed during conditioning, and obtain an early estimate on product availability for sales. The finished product testing determines whether seeds which have been

prepared for delivery to customers meets the written quality standards. Carryover testing differentiates between seedlots with acceptable quality for the coming sales season, and seedlots which no longer have value as seeds and should be discarded. The field testing program helps evaluate the effectiveness of the testing program in separating poor quality and high quality seeds, as well as supplying actual emergence results in case of complaints.

Quality assurance personnel must develop procedures for receiving representative samples on a timely basis. They must determine the appropriate tests needed for their particular crops. They must use the correct procedures for conducting those tests. Useful information to obtain from samples submitted for tests includes:

Variety	Location	Seed Count/Pound
Lot Number	Plant Recommendation	Standard Germination
Test	Purity Analysis	Stress Germ. Tests
Year Produced	Moisture Content	Genetic Purity Tests

When the tests have been completed, results must be evaluated based on the written standards. This evaluation will determine the ultimate disposition of the seeds. It may be advantageous to categorize each seedlot based on the test evaluations. A possible category system is shown in Table 5. This type of categorizing is useful in communicating test result information, and, especially, in drawing attention to problem lots.

The final important step in a quality assurance program is management of the data collected in an efficient manner. It is imperative that this information get to the right people in a timely fashion to be of maximum benefit. In small operations this can be done manually very effectively. However, modern technology has given even the smallest businessman access to a very valuable technology and a very valuable tool - the computer. When used correctly, this tool allows the manager more time to analyze data.

Figure 1 diagrams a simple flow chart for inventory control using a computer system. It requires three main data bases: an inventory control data base, and a quality assurance data base. Each data base receives daily inputs pertaining to it, i.e. test results go into the quality assurance data base; receiving, conditioning, and shipping data go into the sales data base. Once the information is in the data bases, it can be compiled and sorted for a variety of uses. For example, summarized test information can be combined with summarized inventory information to generate a report which will indicate the amount of inventory, its location and its current quality test results. This is where categorizing test data based on the written

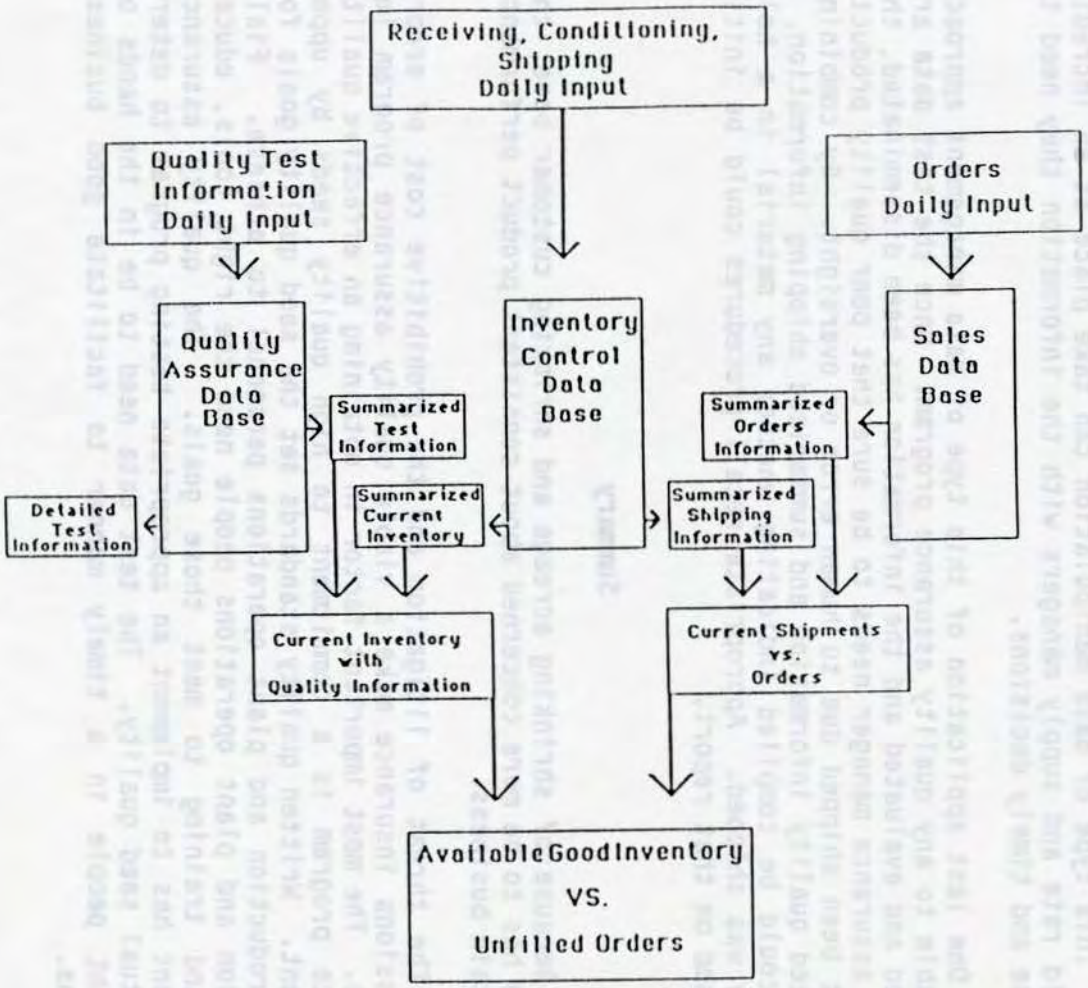

Figure 1. Flowchart for computerized data.

standards become valuable. The current inventory can be sorted by seedlot into the different categories giving managers a list of shippable items, a list of items which need additional work, and a list of items which are not fit for seeds. Summarized shipping and order information can be combined with summarized quality and inventory information to generate reports which indicate the amount of available good inventory still in the plant to satisfy unfilled orders. This type of data manipulation can take place at an incredibly rapid rate and supply managers with the information they need to make wise and timely decisions.

One last application of this type of data management approach is valuable to any quality assurance program. Once the test data are collected and evaluated and the information has been disseminated, the quality assurance manager needs to be sure that poor quality products have not been shipped due to human error or oversight. By combining summarized quality information and summarized shipping information, a report could be compiled indicating whether any material in a hold category was shipped. Appropriate recall procedures could be initiated based on that report.

Summary

Because of shrinking acreage and shrinking customer base, the seedsman has to be more concerned about consistent product performance to maintain business.

The threat of litigation and the prohibitive cost of errors and omissions insurance make a viable quality assurance program imperative. The most important factor in obtaining an effective quality assurance program is a commitment to high quality seeds by upper management. Written quality standards set the seed quality goals for field production and plant operations personnel to achieve. Field production and plant operations people need the right tools, education, and training to meet those goals. The quality assurance department has to implement an appropriate testing program to determine actual seed quality. The test data need to be in the hands of the right people in a timely manner to facilitate good business decisions.

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