

SEED POTATO CERTIFICATION - STRENGTHS AND LIMITATIONS

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There has been a dramatic increase in lawsuits involving seed potato certification agencies and seed growers during the past 8-10 years; as a result this industry has had to take a long careful look at itself. As the harsh reality and somewhat frightening aspects of financial liability became better defined most certification agencies first reacted by either revising or adding disclaimer statements on tags and sales documents plus initiating extensive upgrading of rules and regulations.

The Certification Section of the Potato Association of America became a focal point for exchange of ideas on the complex and urgent problems of litigation. The Section invited lawyers to speak at its annual meetings and the sharing of "war stories" about court cases was a standard discussion topic. As a result of these activities, many certification agencies and seed growers were able to rather quickly correct some of the most glaring deficiencies in their rules and regulations that had been creating unnecessary legal exposure. As the Certification Section sifted through the aftermath of several legal battles we realized the courts had some pretty good advice that needed to be taken seriously and responded to in a positive way. The most frequent and common complaint identified repeatedly was lack of effective communication. Certification agencies had not been effectively communicating with their seed growers; also seed buyers and sellers were not really understanding each other either.

Here are some examples of the types of problems that existed. When we examined our rules and regulations in Colorado, we realized that we had never thought of including a description of how we make inspections --- not even specifying that inspections are visual in nature only. Furthermore, it never occurred to us that the Uniform Commercial Code had anything to do with warranties on seed potatoes. In other words, the certification agencies and the certified seed growers in Colorado, like those in most states, had been talking to themselves for so long they never stopped to think that there were dozens of people "out there" purchasing seed potatoes that never really knew what our seed potato certification system included and how it operated. Also, we needed to be reminded that almost every document we issue and inspection conducted had a potential legal interpretation.

On a national basis the Certification Section soon began to realize that the lack of understanding extended far beyond seed buyers and sellers. Serious misconceptions about certified seed existed in the legal profession and among agricultural consultants as well. We also became aware that some court cases were initiated by hungry lawyers or deperate potato producers who were in financial trouble and searching for any source of financial assistance that might be available. Although some litigation might be explained on this basis, there persisted an unavoidable conclusion that a widespread lack of understanding about certified seed potatoes was and is a real problem.

The process of correcting these misconceptions and deficiencies will not occur overnight, however, many concerned people throughout the certified seed potato industry as well as the Certification Section have started to bridge the gap of understanding. It was brought to the attention of the Certification Section that a complete and understandable statement of what seed potato certification is had never been published in a form that could be used in a court of law. Therefore, in 1980 a special committee of the Certification Section was appointed to draft

Such a statement and have it published. After several revisions a manuscript was finally approved at the February, 1982 meeting of the Section and subsequently published in the American Potato Journal - May, 1982¹ issue.

Among the items included in this Journal article is the following definition:

Certification is the act of endorsing as meeting the standards or requirements specified in the order or regulation governing the production of seed potatoes. Except as otherwise might be specified the measurement method or basis for determining compliance with the standards is visual inspection of the growing ground and crop thereon or harvested therefrom as described in the order or regulations. "Certification" does not mean that the Certification agency has inspected or is responsible for the nuclear or parent stock, nor that the Certification agency has perfect control over the labelling of the stock by program participants. "Certification" does not constitute a guarantee or warranty nor is it a representation that the seed potatoes to which the indicia of certification (certification tags, seals, bulk certificates, etc.) are attached, or which are otherwise represented as certified are merchantable or fit for a particular purpose.

While the above definition sets forth the limits of certification rather well it may not correct misconceptions about the meaning of certain words. For example, the word "certify". A dictionary definition states the following - Certify, to declare a thing true, accurate, certain and etc by formal statement often in writing. Another part of the definition says "to guarantee". The key word here is guarantee. We are all trained from the time we are old enough to read to attach great importance to this word! It is truly unfortunate to have such a concept attached to seed potato certification. It is not surprising that the words CERTIFIED SEED often conjure up expectations far in excess of what certified seed was ever intended to be. The terms "certified milk" as defined in the dictionary may help clarify what the meaning of certified seed potatoes ought to be. "CERTIFIED MILK - milk guaranteed to have been produced according to certain regulations of an authorized medical milk commission". This definition refers to procedures and a set of rules that govern the production. It does not say that the milk is guaranteed to be free of all bacteria or other microorganisms. THE SAME HOLDS TRUE FOR CERTIFIED SEED POTATOES -- AS DEFINED (BY THE CERTIFICATION SECTION - PAA) - ARE SEED POTATOES WHICH HAVE MET THE LEGALLY CONSTITUTED REQUIREMENTS OF AN OFFICIAL SEED POTATO CERTIFICATION AGENCY. It naturally follows that purchasers of certified milk or certified seed potatoes ought to become familiar with the inspection procedures and product standards.

What is the purpose of seed potato certification? What are its real strengths and quite frankly what are some of the reasons that certification programs have been in existence for approximately 70 years in the United States and perhaps an additional 20 years in Europe? We must remember that prior to the advent of certification programs the seed potato business was quite chaotic; for example, mixed varieties and unknown disease contents were common; also there were not any standard methods to identify seed quality. Actually seed potato certification represents an early effort to achieve consumer protection. Going back to the article published in May - 1982 "Potato certification is a service provided to the seed potato industry; its purpose is to provide reasonable assurance as to freedom from pests, varietal purity and grade status of seed". This is fairly straight forward language but let's take a closer look at the meaning of several key words that were carefully selected for obvious reasons:

Reasonable - 1. able to reason - in other words the capacity to be reasonable. 2. amenable to reason, an attitude that would accept reasonableness. 3. using or showing reason or some judgement, sensible and 4. not extreme, immoderate or excessive. The second key word - Assurance: the dictionary says this is an act of assuring or the state of being assured; and something said or done to inspire confidence. Taken together the words "reasonable assurance" summarize rather well what seed potato officials believe is the main function of certification programs.

¹ Title - "Seed Potato Certification: its purpose, capabilities, and limitations. American Potato Journal. Vol. 59:pp. 231-236.

What are some of the capabilities of seed certification agencies and seed growers that justify the assertion that the seed buyer can have "reasonable assurance" about seed quality? One of the most important benefits for the seed buyer is knowing that certified seed has been inspected and found to meet the minimal requirements regarding diseases and varietal purity. In addition, certification agencies group seedlots into different classes and grades. The criteria for determining seed classes usually include specified tolerances for disease and varietal purity plus a requirement that the seed be in a given generation of production. Common examples of seed classes are foundation and certified. When seedlots are prepared for shipment they are categorized into tuber grades based on factors such as size, amount of wet and dry rot and internal discoloration. In other words, potato grades refer to the size and condition of the tubers at shipment. A given class of seed may be grouped into different grades depending on agreement between buyer and seller. Examples of different grades are blue tag, red tag, green tag or whatever color tag may be used in that given seed program.

The amount of disease or other defect allowed under any given class or grade is specified in the rules and regulations by a "tolerance". By definition, tolerance is a permissible allowance for a disease, varietal mixture or grade defect as specified in the order or regulations governing certification. The amount or level of any given tolerance can relate to a number of different reference points; usually, however, the most important consideration is to minimize the chances that any disease could be a serious economic factor affecting production of the crop grown from the seed. In other words, it is well known that many diseases at levels of less than 1/2 of 1% do not constitute a serious threat. In any event, the maximum tolerance is always set much lower than the threshold where measureable yield loss occurs. The concept of zero tolerance is often poorly understood. A zero tolerance does not mean that the seed lot inspected is free of a given disease; it does mean that the problem in question was not found during the inspection process. Zero tolerances are usually reserved for the most serious diseases such as ring rot.

A majority of the effort to determine if seed potatoes meet the specifications for various classes and grades involves inspections. The inspections may be directed at growing of plants in the field, tubers in the storage bin or at shipping point. Inspectors also observe the locations of the fields and the condition of storage facilities. In all cases the inspections are done visually. Laboratory tests may be used to supplement the visual examination. During the past 10 years a yearly average of 185-190,000 acres were inspected in the United States; in Canada the acreage ranges from 65-70,000 acres. Considering the fact that each of the seed fields are inspected at least twice some of them three times, the total number of acres observed each year ranges from 1/2 to 3/4 of a million acres.

The accuracy of field inspections can be influenced by a number of factors thus it is very important for anyone purchasing certified seed to be aware of and understand what these factors are and how they may affect results. Four major considerations will be discussed: a) Factors affecting symptom expression in plants, b) Weather during field inspection and c) Human factors, and d) Frequency of diseased plants in a seed field.

(a) Factors affecting symptom expression in plants:

1. Plant nutrition - it is well known that either an excess or a deficiency of the major soil elements can influence disease expression. Fertilizer excess can delay plant maturity and subsequently delay or mask disease expression.
2. Stage of crop development - for most diseases there is an optimum time under a given set of growing conditions for expression to occur. The variety involved can also be a basic consideration. Inspectors know the influence of these factors and strive to schedule their work accordingly.
3. Soil moisture availability - serious problems may result if an inspector attempts to look at a field that is too dry. Wilted plants can greatly limit the expression of particularly the more subtle symptoms.

4. Insect damage - this is rarely a serious problem but if insect feeding has in any way seriously altered the appearance or condition of the plants it could limit the inspection process.
5. Foliage blights - if a substantial amount of either early blight or late blight were present the resulting leaf damage and discoloration of the foliage can greatly complicate the job of the inspector.
6. Soil borne wilt diseases - verticillium wilt, fusarium and even serious rhizoctonia are common diseases that may be a serious limitation during the second inspection phase of the season.
7. Wind, hail or frost damage - specific regulations are usually included that direct the inspector to reject fields that are not inspectable due to these factors.

The above mentioned factors are beyond the control of the inspector and he must cope with them using all of his experience and knowledge about field production and the potato varieties in question. In any event it becomes readily apparent that a tremendous amount of responsibility faces an inspector each time he steps into a field.

(b) Weather during field inspection - everyone has to deal with the weather, this truism is even more important for field inspectors. They must understand that light intensity and the angle at which the light hits the plant foliage can be either beneficial or detrimental to their ability to recognize diseases. Inspectors soon realize that a strong breeze can tilt potato plants and make them difficult to "read". It is entirely possible that on some occasions an inspector may be forced to work under weather conditions that are marginal.

(c) Human factors - it is self-evident and a matter of common sense that training and experience affect the performance in any job; however, realizing that field inspectors are often part-time employees the matter of training becomes extremely important. In some cases certification agencies may under-estimate the importance of this factor. The element of personal discipline is also extremely important! Field inspection can easily become a boring job and the required alertness and attention to detail can quickly erode if the inspector is not interested in the challenges he faces. Physical stamina is also a factor; if an inspector tires easily fatigue can minimize his mental alertness and ability to constantly scan the foliage for subtle disease symptoms. The factor of inherent color perception ability is not well understood and inspectors are rarely screened for color blindness. However, experience certification agency managers soon become aware of differing abilities between inspectors to detect slight shades of green or yellow in potato plants which could be a significant, but easily overlooked, clue to the presence of a serious disease problem.

(d) Frequency of diseased plants in a seed field. The frequency of disease occurrence in a field also can influence whether or not an accurate estimation of the problem is made during the field inspection. For obvious reasons of cost it is not practical to have the inspector look at every plant in the field. He must observe a sample of plants; consequently, it becomes obvious that a disease which occurs at the level of 1/1000's of 1% compared to one that occurs at a frequency of 1/2 of 1% is going to be much more difficult to find. It is essential that seed buyers understand this limitation of the field inspection process. The frequency of disease occurrence and the previously mentioned environmental factors influencing disease expression are not controllable by the certification agency or the inspector assigned to any given field.

In this age of high technology we often assume that the most advanced disease detection methods are available and being used on a routine basis. There are some laboratory tests which detect diseases better than a field inspector. However, practical techniques for using such tests on large acreages may not be available or if they are the costs are prohibitive. Each certification manager and his advisory board are faced with the economic reality of getting a good job done within specified budget limitations. Furthermore, unless the potato

industry is willing to accept seed costs that are 3-4 times more than they currently pay, it is likely that present methods of field inspection will continue.

However, new strategies in disease control which involve rapid multiplication of disease-free stocks through tissue culture coupled with a limited generation production system offer great hope that steadily improving reliability in seed stocks will continue to occur.

A noticeable and highly desirable improvement in reporting field inspection results has been occurring within the past 5 years. Many seed potato certification agencies now include details of field inspection results along with acreages and growers' names in the seed directories. The seed buyer has a right to know field readings and also should have access to information such as the occurrence of ring rot on a seed producer's farm. While the communication process between seed producers and seed buyers is improving there is another dimension to communication which focuses on the seed buyer. This person should take the time to know the seed producer and if possible visit the seed grower's farm and observe first hand the production methods being used. Furthermore, the seed buyer should do some "homework" about seed certification in general and become familiar with the rules and regulations governing the production from the state in which his seed source is located.

The "track record" of seed potato producers and seed certification agencies to provide an important service in the potato industry is excellent. Seed certification was never intended nor has it ever been presented as a perfect system. In many respects it is remarkable that it functions as well as it does considering the number of uncontrollable factors field inspectors must cope with each year. The outlook for the seed potato industry should be good - the high technology phase of seed potato improvement and seed certification is here and is rapidly becoming a matter of practical reality. However, unless we do a better job of communication the legal problems of the future could literally dwarf the problems of the past.