

The International Society of Seed Technologists

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Abstract

The seed industry is one of the most dynamic sectors in international agriculture. Seed industry mergers, increasing value of the seed product, and changes in communication technology have revolutionized how the industry produces and markets seeds. As a result, seed technologists have developed increasingly complex skills beyond germination and purity testing. The International Society of Seed Technologists (ISST) was formed in 1997 to 1) recognize and certify the competency of seed technologists worldwide by conferring the title of *International Seed Technologist* and 2) provide enhanced educational forums using the latest advances in communication technology. Chapters within ISST must contain at least 10 Colleague Members in a country recognized by the United Nations.

Numerous fast-paced changes are occurring in today's international seed industry, perhaps the most dynamic sector in agriculture. What's driving this change?. There are at least three factors: 1) globalization of the seed industry, 2) value of the seed product, and 3) changes in communication technology. Let's consider each of these in more detail.

Globalization of the Seed Industry.

Small seed to large seed company mergers are occurring at a dizzying pace. In addition, the gene trait providers are entering into the seed industry because the seed is their delivery product for unique genes ultimately making crops more productive and of increased industrial value. As this change continues, what we now see are large, internationally oriented seed companies with a desire to market their product in any location around the globe. This increasing need to market seed worldwide has created stress (and opportunity) for such organizations as the International Seed Testing Association (ISTA) where new seed quality tests must be developed to accurately portray the quality of the seed for the consumer. This same globalization of the industry also created the impetus for the formation of ISST. One of the principal objectives of ISST is to represent the needs of the commercial seed technologist so that responsible input can be provided to ISTA as rules are formulated that affect the global seed industry.

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Value of the Seed Product.

I recently returned from the 2002 FIS/ASSINSEL (now International Seed Federation) meetings in Chicago in May. President Dietrich Schmidt provided the opening remarks. In those comments, he stated that the 2002 value of seed around the world was \$4.1 billion (U.S.) and he projected the global value of seed in 2010 to be \$20 billion (U.S.): a 500% increase in 8 years. How does this affect seed technologists?. Surely, some of this increase will come from greater seed production. It is a fact that more and more countries are creating favorable economic climates where commercial seed production can be successful. Farmers worldwide are also clamoring for specific traits provided by the seed. So, more seed will be sold which means that there will be more seed testing to assure product quality. Some of this increase in value will also come from seeds bearing genetically modified (GM) products. These seeds will inevitably demand higher costs as trait providers attempt to recover research investments. But, as the cost of seed escalates, lack of performance will surely be met with consumer disappointment and possible litigation. Hence, seed companies will likely enhance their seed quality control programs to contain a component of GM testing. The challenge to seed technologists is to ensure that these new laboratory-based tests accurately portray the presence of transgenic events. Competently conducting these tests is a challenge: they require new equipment and expertise not traditionally found in a seed testing laboratory. How these new and important tasks will be addressed in the future will be the subject of considerable discussion. Engaged will be the international seed industry, seed testing organizations, and countries and buyers who do - or do not - want the product.

Changes in Communication Technology.

The computer has changed every facet of our lives and provided ready access to vast information resources through the World Wide Web. Communication with seed technologists around the world, which used to take 2 to 3 weeks, now is almost instantaneous. As a result, our ability to comprehend worldwide activities is increasing. Such changes are also influencing seed technology. For example, all seed-related organizations have web pages that provide the user detailed information (ISSTs is www.isstech.org). ISST is committed to using this new medium in as creative ways as can be conceived to improve seed technology. As an example, at the ISST website you will find a seed ID link under Resources where you can take the seed ID quiz at either the beginner or intermediate level. You can't advance to the next seed image until you correctly identify the current seed image. This approach can be helpful in training of seed technologists for purity analysis. Similarly, ISST has posted its first Virtual Germination Ring Test (under the same Resources link) for maize, soybean and tomato seedlings. Participants were from the United States, Canada, Germany, Argentina and Yugoslavia. The results of this test are now posted on its website and another Virtual Ring Test will be provided in September. Such data help to better understand the nuances of seedling interpretation problems and thereby assist standardization of seed testing. Another benefit of communication technology is the ease with which communication occurs. The ISST Board of Directors decided to send its newsletter, ISST Reports, and all subsequent ones, as an e-mail attachment. The advantages are full color photographs, immediate access, hot links to sites of interest, and reduced publication and mailing costs to the society. Today's seed technologist must become proficient in the use of these improved communication technologies. With the many

changes occurring around the world, it is the best way to stay informed, to communicate, and to become a better seed technologist.

As agriculture has advanced, seed technology skills are becoming increasingly and necessarily complex and sophisticated. The old days of a seed technologist simply conducting either a purity or germination test are fast disappearing. While these skills will remain the center of seed testing, specialists conducting seed enhancement, health, vigor, and genetic purity testing will be immediately ahead. This increasing array of needed seed quality information will surely result in the provision of the best seeds possible to the world's demanding agricultural clientele.

So, the formation of the International Society of Seed Technologists was driven by changes occurring in the international agricultural arena. First conceived in 1997, the founding pioneers of ISST recognized that seeds and the seed industry were fast assimilating and becoming an international force. As such, it was critical that an organization be in place that supported international seed trade through the certification and continuing education of seed technologists. Such a process ensures that seed technologists testing the seed at its site of origin possess the same competency skills as seed technologists testing the seed at its point of receipt; ensuring the orderly movement of seed worldwide. The objective of ISST is to promote ISST chapter establishment in any country recognized by the United Nations. The heart of ISST, however, remains the recognition of the individual seed technologist and the promotion of his/her skills.

How does a new organization establish an identity and formulate this new niche serving international agriculture?. To answer these questions, the ISST Board of Directors underwent a strategic planning process in June, 2001. The following represents the conclusions and objectives identified from that meeting.

The first step was to establish mission/vision objectives that guide ISST. This included that ISST is the global organization of professional seed technologists dedicated to:

- Accepting the title *International Seed Technologist* on a world-wide basis as the highest standard of seed testing professional
- Unifying individuals engaged in seed quality assessment
- Utilizing equivalent seed quality testing protocols

To accomplish these objectives, ISST is committed to:

- Promoting ISST by use of the World Wide Web
- Publishing its newsletter, ISST Reports, on a biannual basis
- Participating in international seed conferences
- Establishing chapters on each continent

By so doing, the global movement of seed will be enhanced for governments, seed companies, and the seed consumer.

With these overarching objectives, ISST set out to identify specific goals to be accomplished within the next 12 to 18 months. These fell into two categories 1) increasing ISST membership and 2) increasing the value and visibility of ISST to its constituents.

1. **Increasing ISST membership.** To increase ISST membership, formal application protocols needed to be established. In addition, ISST had to identify who might be potential members so a survey mechanism was required. The approach to accomplishing these tasks included:
 - a. *A chapter application package will be created and distributed to at least 10 potential chapters by October 1, 2001.* The chapter application package development was complex because it formally established chapter responsibilities. Countries, for example, had to have at least 10 colleague members before they could apply for chapter status. Each chapter also had discrete responsibilities to include allowing individuals voting rights in the organizations, development of a local governing Constitution and Bylaws within one year of formation, establishment of an *International Seed Technologist* proficiency examination within two years of formation, and annual collection of ISST dues. Other specific information on chapter application can be viewed and downloaded at www.isstech.org.
 - b. *The ISST will establish chapters in Brazil, China, and South Africa by January 1, 2003 to enhance the international recognition, expertise and professionalism of its chapter members.* To date, ISST is composed of two chapters, the Society of Commercial Seed Technologists (US) and Commercial Seed Analysts Association of Canada (Canada). But, it has identified strategic countries – Brazil (South America), China (Asia) and South Africa (Africa) where vibrant seed industries exist. Establishing chapters in these countries will serve as models of the benefits and values of ISST to its members in each continent. The organization has already established a presence in Brazil where it attended the September, 2001 Brazilian Seed Congress in Curitiba. That led to an increase in Brazilian ISST Colleague Members that is hoped will shortly culminate in the establishment of a chapter. ISST has also solicited the assistance of the International Seed Federation (ISF) in identifying potential ISST members.
 - c. *The ISST will develop an international contact questionnaire to identify potential new members and will develop guidelines for first contact to standardize information presented to potential new members.* This objective was accomplished by e-mail through a survey of ISTA, SCST and CSAAC members. Further information (also translated in Spanish, Portuguese, and Chinese) can be obtained from Betty Girard, ISST Membership Director, at membership@isstech.org.

2. **Increasing the visibility and value of ISST to its constituents.** To provide value to its members, ISST decided that it needed to communicate easily and inexpensively with its constituents. In addition, it needed to ensure that its members received a product that furthered their skills and competency in seed technology. To accomplish these goals, ISST established the following objectives:
 - a. *The ISST will have a functional website by September 1, 2001 to provide an effective information exchange from and among existing chapters.* The ISST website was established at www.isstech.org and it is a wealth of seed technology information. It is a site under continuing development, so suggestions for improvement are solicited. In addition to the traditional information of who ISST is and how to

become a member, there is a variety of other important information. For example, under resources, check out the seed identification link. There, you will find images of over 450 agriculturally important seeds. Test yourself on their identification using the dynamic seed ID quiz. In addition, the site has a “virtual” germination ring test where normal and abnormal seedling interpretations can be made for soybeans, maize, and tomatoes. The organization is also reviewing little seen seed technology educational materials by its Education Committee. If these meet ISST standards, they will be posted on the website for everyone’s access.

- b. *Starting with the next issue of ISST Reports, the Editor will include a minimum of two articles on innovations in seed technology in each edition of ISST Reports. The ISST Reports will be placed on the website to provide leading edge technology to its members.* ISST is committed to information exchange about advances in seed technology and its newsletter, ISST Reports, is the principal medium to accomplish this objective. It is also committed to advancing the technology of seed quality assessment. It has already funded one successful research proposal from India that examined the genetic purity of cotton seed lots. ISST’s commitment to research and communicating its worth to ISST members is also noted by its requirement that ISST Reports contain a minimum of two research reports per issue. This allows members of ISST to know what is going on in this vast globe that we live on.

These examples illustrate that ISST has charted an aggressive course for its future and set ISST in motion. Through ISST, credibility and recognition is given to the individual seed technologist. ISST welcomes new members to the society and encourages development of chapters within the organization.