Use of Variety Testing in Intellectual Property Protection

Seed intellectual property protection (IPP) tools support new variety development by ensuring adequate returns on the long term investments made by variety developers. On the premise that "good fences make good neighbours," IPP tools also discourage theft and duplication of research during the period of exclusive protection.

The types of seed IPP tools available in Canada for variety developers include Plant Breeders' Rights, license or single use agreement contracts and plant cell (or variety improvement) patents. Other seed IPP tools include trade secrets, copyrights, trademarks and utility patents.

Q. How are variety names used in seed intellectual property protection?

A. Depending on the type of intellectual property protection (IPP) involved, the use of variety names varies significantly.

Unlike official seed certification, IPP tools are not limited to varietal identity and varietal purity terminology which involves an internationally recognized, and nationally regulated, definition of "variety" as the expression of a specific genotype. For example, many licenses and single use agreement contracts focus on specific traits or characteristics.

Unlike official seed certification, most IPP requirements are not officially enforced by governments. Plant variety protection programs (such as Plant Breeders' Rights in Canada) and patent requirements involve national legislation and initial verification but no official or government enforcement programs. Variety developers, rights holders and distributors are responsible for enforcement and compliance. For many IPP compliance requirements, they determine the appropriate use of variety names. Variety developers and distributors in *Canada formed the Canadian Plant Technology Agency* to collectively enforce seed IPP and educate producers on the appropriate use of variety names.

Prepared by the Seed Sector Value Chain Roundtable.

Q. How is variety testing used in seed intellectual property protection?

A. Depending on the type of IPP tool involved, the use of variety testing also varies significantly.

For varietal identity preservation and traceability, most seed intellectual property protection (IPP) programs depend internally on HACCP-type, audited quality management systems and externally on variety or trait stewardship programs.

In some crop kinds, especially hybrids, variety testing programs are growing as more new varieties are developed with fewer, visually distinguishable characteristics. Most of these testing programs supplement or audit the developer's quality management system.

Traditional plant variety protection legislation, such as Plant Breeders' Rights (PBR) in Canada, have field testing requirements to ensure that the variety is distinct, uniform and stable (DUS).

Unlike traditional variety protection legislation and unlike official seed certification requirements, the conditions of many IPP tools (such as when and what type of testing are required) are prescribed in IPP contracts or by the guidelines and rules of trade organizations like the Biotechnology Industry Organization (BIO) and the International Seed Federation (ISF). Participants in these organizations are national seed trade associations and variety developers, not the state and national governments engaged in the OECD Seed Schemes and the Association of Official Seed Certifying Agencies (AOSCA).

With members from over 70 countries, the ISF provides considerable technical support to UPOV and to the International Seed Testing Association (ISTA). This support includes variety testing research and technical advice related to IPP that ranges from the role and definition of essential derived varieties (EDV) to codes of conduct for parental lines of hybrids to patentability pre-requisites to the appropriate use of DNA testing and molecular markers for different types of IPP applications.

Q. How are biochemical and molecular techniques (BMTs) used in seed intellectual property protection?

A. Depending on the type of IPP tool involved, the use of biochemical and molecular techniques (BMTs) in variety testing varies significantly.

Except in enforcement situations, BMTs are not used in seed intellectual property protection programs that involve traditional variety protection legislation such as PBR in Canada.

For IPP tools such as single use agreement contracts, non-molecular BMTs have been used extensively in trait stewardship and IPP monitoring programs for verification evidence.

If more developers use plant cell (or variety improvement) patents in the future, and the cost of genetic testing continues to decrease, the use of molecular BMTs in IPP monitoring programs should be expected to increase.

Also as more varieties of more crop kinds, especially hybrids, are developed with distinguishing characteristics that are not visually distinguishable, increased use of BMTs is expected.

Variety identification and varietal purity claims by many seed testing labs can be very misleading, especially the appropriate confidence levels for molecular BMT test results. Neither sampling requirements nor diagnostic methods in this field are well understood yet by most consumers. So producer education is urgently required.