CANADIAN SEED TRADE ASSOCIATION
L'ASSOCIATION CANADIENNE DU COMMERCE DES SEMENCES
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Submission: PMRA Draft Value Assessment of Corn and Soybean Seed Treatment Use of Clothianidin, Imidacloprid and Thiamethoxam

The Canadian Seed Trade Association (CSTA) appreciates the opportunity to prove input on the value assessment of neonicotinoid treatments for corn and soybeans. CSTA represents 130 companies involved in all aspects of the seed industry. Our members work with over 50 different crop kinds and are engaged in all production systems: organic, conventional and biotechnology. Our members range from single farm family retailers to large multinational firms. They are involved in all aspects of the seed industry; plant breeding and research, production, marketing and distribution, packaging, conditioning and international trade. The Canadian seed industry contributes $5.6 billion to the Canadian economy annually, with exports valued at $450 million and employing over 57,000 Canadians.

It is estimated that 9 out of every 10 bites of food taken by people around the world start with the planting of a seed. Seed is the driver of the innovation that the world's farmers will need to feed, fuel and clothe a world population that is expected to reach 9.3 billion in fewer than 40 years, while facing the challenges of climate change and competing demand for water, land and resources.

Value of Neonicotinoid Seed Treatments

To meet future global food demand, farmers will have to increase their food production while being challenged by competition for land and water and by climate change. To meet these demands, production and yield must increase on a per acre basis. As such farming practices have changed.

CSTA's corn and soybean companies are strong proponents of neonicotinoid seed treatment technology and the benefits they provide for corn and soybean production. Neonicotinoid seed treatments have fundamentally changed the way corn and soybeans are grown in Canada. Since the introduction of neonicotinoids, corn and soybean seed is now planted earlier in the year in soils that are often cold and wet to help maximize yields. However, early season planting in cold and wet soils puts the seed and seedling at a greater risk. Neonicotinoid seed treatments offer protection from many of the risks associated with early season planting pests.

Neonicotinoids offer protection against above and below-ground pests including those that carry bacterial and viral diseases. Currently neonicotinoids are the only seed treatment available that protects the seed from pests, there is no rescue treatment currently available for below-ground pest control after planting. Neonicotinoids provide growers with the confidence that they have taken an important step to reduce threats to the plant that can easily destroy a harvest, wasting

huge amounts of natural resources as well as time, money and labour. Without access to neonicotinoid seed treatments production would drop and costs would rise sharply for both farmers and consumers. The economic costs would be heavy and ironically, the environmental costs would also be high. With increasingly high input costs, the modern farmer needs to maximize crop production. Every seed planted needs to grow.

CSTA corn and soybean members each conduct individual company trials and tests to determine how different treatment products perform across their range of product offerings. Some corn and soybean companies have conducted long-term rigorous studies of neonicotinoids across their different genetics and in different crop growing regions to better understand the benefits of using particular seed treatments. These studies are designed to evaluate yield impact, as well as other important agronomic characteristics such as seedling vigor and stand count. Corn and soybean companies continue to use neonicotinoid seed treatments based on data generated by their internal evaluations that demonstrate tangible benefits to their grower customers.

While CSTA is not privy to individual confidential company data, it has been made clear to the association that neonicotinoids are an invaluable tool for both environmental stewardship, increases in yield and plant stand and control of insects that can impact quality.

Companies involved in food grade soybean production are adamant that without access to neonicotinoid treated seed they would be at a serious risk of losing their market. Companies producing food grade and/or identity preserved (IP) soybeans for international markets can only do so if their product is of the highest quality, they are therefore very sensitive to any damage caused by insects, such as Soybean Aphid and Bean Leaf Beetle. Pest control is therefore of the utmost importance.

Soybean Aphids damage soybeans by extracting sap, or phloem, from the growing plants. As the growing season progresses and aphid populations build, aphids spread throughout the plant and attack flowers, pods, stems and the leaves of the plant. The pest pressure causes stress on the plant which can result in stunting and+ a loss of flowers or pods which result in a reduction of seeds per pod.

Soybean aphids also leave a sticky film behind that attracts Bean Leaf Beetle. Bean Leaf Beetles eat holes in the soybean, leaving behind bite marks that render the product not worthy for food grade exports. In Ontario, food grade and IP soybean producers are able to earn a $75 per tonne premium in international markets.

Environmental Benefits

The benefits provided by neonicotinoids are more than just increased yield; treated seed is an important factor in environmental stewardship. It is well understood that the use of seed treated with insecticides is the least environmentally intrusive measure for controlling insects that are an annual concern in many crop types, including corn and soybeans, and as a result are an important tool for many producers. Safe and targeted use of seed treatments reduces the amount of chemical used on large areas of farmland by reducing or eliminating the use of foliar sprays due to its targeted and long lasting protection against pests, offering protection through the critical period until around the 4-leaf stage, helping establish a healthy plant stand.

If farmers were not able to purchase neonicotinoid treated corn and soybean seed they would have to turn to alternative methods to manage insect pressure such as in-furrow or foliar

applications, both of which are more expensive and less environmentally friendly.

Precision agriculture, which includes use of treated seed, has become a hallmark of modern agriculture production in Canada. Precision agriculture means that farmers do not have to till their land before planting the crop. Tillage is one of the primary agronomic activities believed to reduce soil organic carbon (SOC). There are three main types of tillage: conventional tillage, conservation tillage, and no-till (or zero-till). Each is defined by the amount of crop residue left on the surface after the crop has been harvested. Conservation tillage practices help to capture CO2 from the atmosphere, trap it in the form of organic matter, and return it to the soil thus helping to reduce greenhouse gas emissions.

No-till or reduced-till farming practices have been proven to protect fragile soils; reduce erosion and soil compaction while protecting soil nutrients and allowing natural cover crops to grow. No and low till systems also use less fuel, reducing Canada's agriculture carbon footprint.

Prior to seed treatments farmers across the country had to till the land extensively before planting to raise the soil temperature and remove organic matter left in the field where insects are most prevalent, which also released stored carbon. The additional fuel that will be required to work the soil will not only increase farm costs but will increase agriculture's carbon footprint

Science-Based Decision Making

In order to be successful and remain competitive as an industry, the seed sector relies heavily on government and regulators at every level to make decisions based on sound, reputable science. Sound scientific principles are measurable, reproducible and predictable. Regulatory assessments and approval processes based on science ensure that all products are assessed consistently, giving confidence to consumers and to the developers of innovation. CSTA appreciates that the Pest Management Regulatory Agency (PMRA) of Health Canada has remained steadfast in your commitment to science-based decision making based on risk.

CSTA and the seed company members that we serve have frequently and publicly reiterated our support for the PMRA process, given that PMRA has the mandate and expertise to make sound science-based decisions based on a wide body of evidence. We are encouraged by the fact that PMRA is the only agency that is legally obligated to make decisions based on scientific rigor.

Unprecedented Industry Action

While it does not directly relate to the value that neonicotinoid treated corn and soybean seed, we believe it is important to reiterate all of the steps that the agriculture value chain had undertaken to ensure that the technology is used in a responsible and environmentally friendly way.

CSTA and our member companies recognized early on that steps needed to be taken to mitigate risk to pollinators during the planting of neonicotinoid treated corn and soybean seed. The decision to take action was industry led and driven and it resulted in unprecedented cooperation and collaboration amongst value chain stakeholder groups.

In July, 2013, CSTA facilitated the creation of a '*Seed Applied Insecticide and Pollinator Health Value Chain Coalition'*. The industry led coalition brings together grower groups, developers, applicators, marketers and users of seed treatments and treated seed who are committed to

maintaining the highest possible standards for the development, application and use of all federally approved crop production inputs, including neonicotinoid seed treatments.

In August, 2013, the Coalition sent a formal letter to the Federal and Provincial Ministers' of Agriculture and the Environment that outlined the Canadian agriculture industry's commitment to working with the entire value chain and our federal and provincial regulators to find a workable, non-regulatory solution to protecting and enhancing pollinator health. In March, 2015, an even broader cross group of agriculture associations again wrote a formal letter to follow up on the commitments that were made.

Since making our commitments known, CSTA and our members have been working diligently and collaboratively with the entire value chain to ensure that the technology carried by seed, such as insecticides, is used in a responsible manner to mitigate risk to pollinators.

CSTA and our members specifically have undertaken five significant initiatives to help ensure that pollinators and the environment are protected and those farmers are able to continue to access the tools that they need to grow the crops that Canadian's rely on for food, fuel and fiber:

1. Promotion of best management practices for the planting of treated seed
2. Additional labeling for treated seed
3. Improved technology
4. Lifecycle stewardship
5. Giving farmers choice

Conclusion

The feedback that CSTA has received from our corn and soybean member companies clearly indicates that neonicotinoid insecticide seed treatments are valuable tools for soybean and corn production by protecting the seed, and increasing plant stand and yield, which results in increased farmer income and reduced intensive tilling practices.

CSTA's member companies are stewards of seed and the technology that seed carries. The seed sector takes its responsibilities very seriously and understands that it has a responsibility to ensure that seed and seed technology are used in a way that contributes to an abundant and safe food supply, a vibrant agricultural economy and a healthy environment.