An Assessment of the Draft Regulations Implementing the Ontario Neonicotinoid/Pollinator Strategy

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The Issue

Ontario stated its intent to restrict neonicotinoid insecticides in 2014. This was further elaborated in an early fall 2014 policy statement and a Pollinator Health discussion document[1] that established aspirational targets of an 80% reduction in corn and soybean neonicotinoid insecticide use in Ontario by 2017, and a reduction in the over-winter honey bee mortality rate to 15% by 2020.

Image Source: National Geographic[2]

The formal public debate and consultations on neonicotinoid and pollinator policy direction has now moved on to what type of regulatory approach will be used to implement the policy intent, and draft regulations have recently been released for comment. But how the regulation of neonicotinoids is structured could dramatically influence the effects of this policy direction. The purpose of this policy note is to analyze this proposed regulatory approach.

Proposed Regulations

In late March, the Ontario government released draft regulations to support its pollinator strategy.[3] The Ontario *Pesticides Act* will be amended to create a new class of pesticides for seed coatings/seed treatments. Seed companies that produce seeds treated with specific neonicotinoid insecticide coatings (corn and soybeans) will be licensed and required to report sales of treated and non-treated sales in Ontario. Inspections (assessments) will be required on behalf of producers every three years indicating the justification for using treated seeds. This will be based on pest counts in soil samples and past crop damage, assessed by certified crop advisors. The documentation from these assessments will be required from farmers by seed sales staff (agri-retailers), and forwarded for record keeping to seed companies. Thus, it appears that seed companies are to be held accountable for sales of treated seeds relative to the acreage of corn and soybeans in the province with positive assessments. This strategy will be complemented with training for producers on integrated pest management and mitigation of adverse effects from treated seeds on pollinators.

Context

The science regarding the effect of neonicotinoids on pollinators is not unequivocal, and remains the subject of intense scientific debate. For example, the Pollinator Health discussion document presents data on declines in bee population and references to research supporting links with neonicotinoids; Dr. Terry Daynard has compiled an overview of data and research studies critical of, or contradicting this information[4]. There appears to be voluminous scientific literature on the topic, but not a consensus accepted by all parties.

Moreover, a strong dichotomy of public opinions exists regarding restrictions on neonicotinoids. Corn and soybean producers and their suppliers are adamantly opposed to the restrictions. The Ontario Beekeepers Association is highly supportive[5]. A subset of food

[1] http://www.omafra.gov.on.ca/english/pollinator/discuss-paper.pdf
[2] http://images.nationalgeographic.com/wpf/media-live/photos/000/262/cache/honeybee-honeycomb-macro_26201_990x742.jpg

[3] http://news.ontario.ca/ene/en/2015/03/proposed-new-requirements-for-neonicotinoid-pesticides-to-protect-pollinators.html

[4] http://tdaynard.com/
[5] http://www.ontariobee.com/inside-oba/news-and-updates/ontario-beekeepers-support-government-plan-to-reduce-neonicotinoid-use-by-80

advocacy groups and naturalists are also highly supportive of the restrictions.

There are many confounding factors likely to frustrate measurement of benefit to pollinators from restriction of neonicotinoids, such as increases in seasonal interprovincial movement of bee populations from Ontario to the Maritimes, recent severe winters in Ontario, the relatively recent discovery of bee colony collapse disorder, adverse effects of Varroa mites, some new and less experienced apiarists entering beekeeping, and only very recent developments in mitigation of neonicotinoid-treated seed effects, such as manifolds on planters that direct seed dust near the surface of the ground.

The notion of assessments as a means of adjudicating prudent use of pest control products in agriculture is tenuous at best. The difficulty is that decisions regarding many treatments must be made before it can be known whether the pest of concern will present itself during the growing season and with what severity. Pest control products can offer an element of insurance against these hazards. At the same time, experience does provide some guidance with respect to certain regions, climatic patterns, soil types, crop rotations, etc. that may be more or less prone to damaging infestations of the types of insect pests controlled by neonicotinoids. Past infestations and demonstrated crop losses are also indicators. But conditions during the growing season can shift the situation dramatically, with little warning. For example, in 2001 Ontario was suddenly struck with an influx of soybean aphids, followed by a population of ladybug predators of the aphids that were a foreign invasive species to Ontario. A sharp decline in soybean yields resulted.

Considerations

Agriculture has historically been extended broad authority for independent decision making with respect to crop production/husbandry decisions, including the use of federally approved technology products. Farmers are not accustomed to filing or awaiting a soil assessment prior to making crop production decisions, or bearing the costs of assessments. Corn and soybean production is highly decentralized in rural and remote areas; ongoing observation and inspection/enforcement of individual farms would be exceptionally difficult and costly, and would face resistance. Much of the affected seed, especially seed corn, is produced and packaged outside of Ontario. Packaging lots of untreated seed for the Ontario market to match with farm assessments for neonicotinoids from Ontario is likely to be expensive and potentially unwieldy for seed companies.

No type of economic study has been presented by the Ontario government regarding the effect of the regulations on affected parties. More commonly, a regulatory impact assessment statement (RIAS) is prepared that highlights who will be affected, lost productivity and competitiveness costs, other regulatory approaches that could have been taken, and justification for why these alternative approaches were rejected. A RIAS could also have helped clarify the scientific justification for the 80% reduction in neonicotinoids on corn and soybeans as efficacious, and why a 50% reduction in use is acceptable in 2016 as transition year. Similarly, a RIAS could have justified the thresholds applied for soil count and crop losses in making assessments, or the logic for geographic differences in phase-in of implementation. This information would have been helpful in better framing the issues, including the rational value that will be placed on research to help mitigate effects.

Agencies Implementing Regulations

The Ontario Ministry of Environment and Climate Change (MOECC) is set to lead inspection and enforcement of the proposed regulation with the collection of seed sales data, with the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) collecting the assessments and providing training.

MOECC has limited relationships with agriculture, and the relationships they have are very different than that of OMAFRA. No one would confuse MOECC as an

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advocate for agriculture; MOECC is ill-equipped as a regulator to deal with a dispersed, diverse, rural, household-based industry like agriculture, its experience with the Ontario Nutrient Management Act notwithstanding. Seed companies have established relationships with federal regulators such as CFIA; the

Image source: http://bit.ly/1FCgJxB

relationship with MOECC envisioned in the proposed regulations will be largely new. Thus, we have a regulator with limited experience in agriculture newly regulating firms with whom they have had little if any past relationship, in an area that the firms are adamantly opposed to.

OMAFRA has long established relationships with the agricultural industry that makes it an effective deliverer of information and training. It is less clear what OMAFRA will do with the assessments it is charged with collecting. If review or analysis of the assessments is to occur, given the number required (apparently one per farm for corn-soybean growers, with field drawings, etc.) then a sizeable OMAFRA staff may be required. If assessments are to be analyzed for reasonableness and/or compliance with the process, it is unclear how non-compliant assessments will be handled, especially given the possibility that at least some assessments could occur in the spring at a time of great urgency and time constraint for farmers.

OMAFRA is poorly positioned to act on non-compliant assessments as its primary stakeholders are the farmers. Similarly, it is unclear what responsibility and liability may fall on certified crop advisors called upon to make the assessments, and whether they will want to provide this service, and how they will be validated as independent third-parties. With farmers as their customers and given the inherent difficulty making the assessments referenced above, surely the crop advisors are predisposed to provide positive assessments. In effect, the crop advisors could regularly find themselves in a conflict of interest situation in providing the assessments to clients with whom they have broader relationships as customers.

In this context it is unclear what standard of service government can provide to producers. In particular, if analyses of assessments were to delay planting by some producers, would producers be compensated? How would this be determined? More fundamentally, it is unclear how results will be measured and communicated. It is similarly unclear whether, if the restrictions do not result in a recovery of bee population as envisioned, the restrictions would be loosened. But this requires in-depth measurement of effect, and sorting out of confounding factors.

Enforcement Issues

The proposed regulation in effect claims that assessments will capture both sales and use of neonicotinoid-treated seed corn and soybeans. It is unclear how this claim can be substantiated, as there appears nothing to prevent Ontario producers from purchasing treated seeds outside of the province. For example, in eastern Ontario there are some traditional patterns of input supply purchase from Quebec by Ontario farmers, and Quebec has not restricted neonicotinoids. Imports of seed from the US and internet purchases of seed from outside the province may also present a similar challenge.

Section 19 of the *Pesticides Act* allows for inspectors to enter premises they believe to contain pesticides, but there is no apparent contemplation of farm inspections for compliance in the proposed regulations, and making this threat credible as an instrument of compliance enforcement would require extensive resources. Moreover, MOECC staff would probably not be

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welcomed by farmers in this role, and OMAFRA staff would likely resist carrying this out as it undermines relationships built with farmers. However, absent on-farm inspection, the Ontario government will not really know the extent of actual use.

To illustrate, the proposed regulations allow for a grower to seed up to 50% of corn or soybean acreage with treated seed in 2016 without an assessment (an assessment would be required above this proportion). However, it is unclear how this compliance could be verified without conducting on-farm inspections, with the challenges noted above.

Alternatives

A critical consideration framing regulatory implementation is the uncertainty of efficacy, with ongoing debate regarding the effect of neonicotinoids on pollinators. Given this, an alternative to the proposed standards-inspection approach that acknowledges uncertainty of knowledge base and lack of enthusiasm among the population to be regulated is warranted.

A different way of approaching this is to take a more facilitating approach and engage the uncertainty directly. To do so, focused pilot projects to determine whether changes in mandated practices really do indeed mitigate impacts on pollinators could be used. This would better engage the elements of the agricultural industry that are currently opposed, and thus improve compliance incentives as well as creation of information and learning on actual benefits and costs. This appears consistent with the broad intent of the policy direction.

For example, grain corn and soybean production is newly occurring in cooler and more northerly regions of Ontario than has historically occurred. The pests treated with neonicotinoids are apt to be less common in these regions. Regional pilot projects could be undertaken in these regions to test whether reducing neonicotinoid treated seed makes a difference to local bee populations, with meticulous collection and analysis of data. The productivity impact on corn and soybean feared by growers could be mitigated by choosing these regions as experiments. With regard to corn, these could be more easily accommodated because shorter season seed corn varieties are grown and packaged in Ontario[6], and Ontario government assistance could be used to facilitate separation of small lots for pilot experiments. To protect farmers in pilot areas, crop insurance coverage could be appropriately adjusted so that the pilot by itself did not disadvantage producers.

Elsewhere, other pilot projects that extend beyond research projects could examine other mitigating measures, such as the use of manifolds that direct planter dust close to the surface of the ground. Government funds could be used to assist farmers in retrofitting and installing the manifolds, with data collected and analyzed on the outcomes[7].

The results of these initiatives could, at relatively low government cost, provide a better assessment of the Ontario context for neonicotinoids and pollinators, and generate new information for ongoing policy development. This is consistent with the ideas of Active-Adaptive Management applied in ecology. It also allows for a more pragmatic view of the dissonance in science on neonicotinoids and pollinators, rather than having the government simply come down on one side of the issue or the other. This, in turn, could assist the government in building bridges with parties on both sides of the debate-not just one side, as is currently the case.

Conclusions

The regulatory changes proposed to reduce neonicotinoid insecticide use in Ontario run some very significant risks.

It will regulate an industry that is adamantly opposed to this policy direction. The lead regulator has little experience in or relationship with the segments of agriculture it will regulate. There is a juxtaposition between the apparent assumption that there will be high

[6] Higher heat unit corn varieties tend to be produced in the US and imported

[7] This is consistent with a recommendation of the *Ontario Pollinator Blueprint* initiated by the Grain Farmers of Ontario http://www.gfo.ca/LinkClick.aspx?fileticket=Enx_p_CUp7w%3d&tabid=965

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compliance to the proposed regulation, and the reality that crop production does not work the way the regulations envisage, and that corn and soybean growers are opposed to it. It will be practically difficult to know whether and how actual progress is occurring relative to the objective.

However, a perceived failure in the regulation- due to lack of efficacy and/or lack of effective compliance- diminishes the credibility of government. Avoiding this should be a priority.

The approach taken in developing the regulation, which is presumed to benefit apiarists at the expense of corn and soybean producers, appears to assume that it will enjoy broad public acceptance. This may indeed be the case. However, this is a very different matter than a new regulation intended to reign in some fringe criminal element, and the contrast in moral basis between restraints placed on acknowledged criminal activity and restraints placed on farms as rural household businesses through regulation could be a perilous one. This could quickly become evident if the government must confront large incidences of non-compliance with the regulation. Perhaps only a small number of major fines or arrests of farmers, publicized in the right way, could dramatically shift public opinion of the regulation. This is an avoidable, real risk of the proposed regulation.

At its worst, the proposed regulations run the risk of creating a type of policy "trap". This occurs when the government adopts the appearance of strong regulations to placate those supportive of the policy, yet little actually occurs because those subject to regulation are not in favour of it. If it later becomes evident that the policy has not met its objectives, despite the regulations, the government risks alienating the supporters of the policy, and yet retaining an antagonistic relationship with the group subjected to regulation. In the end, it could leave government alone and isolated from allies on either side of the issue.

Because of its complexity, rather than "solving" the pollinator problem, the regulations on neonicotinoids, as proposed, may simply move pollinator discussions on to other potential causes and effects of bee mortality, and add a new dimension to debates on costs and benefits of agricultural technology restrictions versus environmental protection.

Given the depth of uncertainties, taking more of a facilitating approach that better engages corn and soybean producers and their suppliers, rather than a standard setting-enforcement approach intended to assist apiarists at the expense of corn and soybean producers, could help the government and the agricultural industry to make better progress on this complex issue. Given the "aspirational" objectives contained in the policy statement, surely this alternative is consistent with the intent.

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