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# Nutrient Management Planning in Nova Scotia

*Past, Present and Future*

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Nova Scotia Institute of Agrologists



## *Executive Summary*

On November 19, 2014 the NSIA held a NMP Workshop at the Dalhousie Agricultural Campus. Forty agricultural professionals attended. The goal of this event was to provide a critical assessment of the current state of Nutrient Management Planning in Nova Scotia.

The NSIA conducted a detailed survey of the 12 Certified Nutrient Management Planners in the province. The results of that survey were presented. As well, three invited speakers gave presentations on three different nutrient management models. Following the presentations, a facilitated discussion was conducted where the workshop participants were asked to provide their answers to the following three questions: What would the ideal Nutrient Management Program look like for the Nova Scotia circumstance; what are the barriers to getting to the idea; what are the first steps that need to be taken to move forward?

Five recommendations have been made:

- A NM Program coordinator position needs to be established, if not full time at least in a two year term, to help the industry move forward. This position could reside at NSFA or NSDA.
- There needs to be some updating to the “science” behind the recommendations that come from the NSDA soils lab. This could be accomplished by the establishment of a working group led by the Dalhousie Faculty of Agriculture (in partnership with Perennia, research organizations, producers, consultants) and by incorporating some fertility trials into their annual work plan they might over a period of time build some renewed confidence in the lab results. Funding for such a project would need to be determined.
- Education of NM Planners and growers must be continually updated. The new on-line certification course being offered in 2015 through the Dalhousie Faculty of Agriculture will provide NM Planners in the region an opportunity to update their skills as well as train new planners. Next steps would include modifying the course content to aid in the education process for industry. If more producers understand the fundamentals of nutrient management planning and the importance of record keeping, this will lead to improved uptake and adherence to the plan.
- The Environmental Farm Plan (EFP) award offered annually through the NSFA could be expanded to include a formalize recognition of the NMP portion of the EFP. Profiles and testimonials of producers who make good use of the NM system would be valuable.
- A simplified and easy to use system to implement and manage NMP is the key to producers utilizing the process. The Vermont model appears to have many advantages. A pilot project developed in partnership between Dalhousie Faculty of Agriculture, Perennia, consultants and industry could be initiated.

# Nutrient Management Planning in Nova Scotia

## *Past, Present and Future*

In the late 1990 and early 2000's, nutrient management planning (NMP) emerged as a key environmental and economic consideration for agriculture in Nova Scotia. The agriculture sector addressed this issue by developing voluntary nutrient management programs rather than imposing strict regulations controlling the use of nutrients for crop production. The Nova Scotia government, in collaboration with the Nova Scotia Federation of Agriculture played a leadership role in the development and delivery of NMP's by supporting the development of an education-based model for nutrient management plans, training of nutrient management planners and direct support for the completion of nutrient management plans on over 300 farms in Nova Scotia. The intent of the program was to demonstrate the value of the nutrient management planning process to growers in the hope that it would become a standard management tool on the farm.

Key to the long-term adoption of the nutrient management planning process was the demonstration of their utility, reliability and economic value. To ensure that NMP's continued to demonstrate responsible use of nutrients in agriculture and the protection of the environment, it was important that a mechanism be developed to demonstrate "due diligence" in the preparation, delivery and documentation of the nutrient management process. This was in keeping with the industry's desire to be proactive in demonstrating responsible nutrient use and thereby avoid the need for government regulation of nutrient use in agriculture. It was important that the process supported sustainable agricultural production, but also be clearly demonstrated to be protective of the public and be responsive to the needs of other stakeholders such as municipal, provincial and federal governments. Part of this mechanism is the need to be able to document that the individuals developing and delivering nutrient management plans have demonstrated ability, remain current with respect to advances in nutrient management and act in a professional manner.

In 2006 the Nova Scotia Institute of Agrologists (NSIA) was granted the authority to administer the Certified Nutrient Management Planners (CNMP) designation on behalf of the NS Department of Agriculture. It does so in conjunction with the NS Federation of Agriculture and Dalhousie University, Faculty of Agriculture. The designation ensures that NM Planners are both qualified and competent to deliver NM plans to growers under the NSDA's Nutrient Management Program. There are currently twelve CNMP's in Nova Scotia.

After nearly a decade of nutrient management planning in Nova Scotia, there has been interest in conducting a review of all aspects of the process, including, but not limited to:

- grower adoption of nutrient management plans in NS
- critical assessment of the original model for NMP's
- economic and environmental impacts of implementing the NMP process to date
- comparison of the NMP process in other provinces / countries
- assessment of the NMP certification process

- assessment of the NM Planner's training course

As funding for an extensive review was a limiting factor for 2014, NSIA felt it was within our mandate as the certifying body for planners, to survey them for their perceptions of the current state of NMP in NS.

On November 19, 2014 the NSIA held a NMP Workshop at the Dalhousie Agricultural Campus. Forty agricultural professionals attended.

## ***Workshop Format***

1:00-1:30 Results of a survey of Certified Nutrient Management Planners in NS by Laurie Eagles, Executive Director, NSIA

1:30-2:00 NMP in Ontario by Matthew Wilson, NMP Lead, Ontario Ministry of Agriculture, Food and Rural Affairs

2:00-2:30 NMP in PEI by Kyra Stiles, Agri-Environmental Development Coordinator, PEI Dept of Agr. And Forestry

2:30-3:00 NMP in Vermont by Rosalie Madden former Crops and Soils Technician with the University of Vermont Extension

3:00-3:15 Nutrition Break

3:15-4:15 A facilitated discussion on the future of NM Planning in NS

4:15-4:30 Wrap Up

## ***Survey Results***

The twelve CNMP in Nova Scotia were surveyed. Nine of the surveys were returned with one being incomplete. The survey was comprised of three sections:

- demographics including years of experience, commodities within which they work, number of plans completed per year, types of plans (new, renewal, one year and three year) and services offered (i.e. soil, manure or tissue sampling and GPS mapping)
- training needs
- open ended questions concerning their overall impression of the current state of NMP in NS

The following are the results of the third section of the survey:

**IN YOUR OPINION, WHAT ARE THE KEY FEATURES OF A GOOD NUTRIENT MANAGEMENT PLAN? 7 RESPONSES**

- practical, affordable
- user friendly
- easy to understand
- environmentally responsible
- flexible
- must improve soil health and increase crop quality
- recommendations based on current technology and research

CAN THE EXISTING FORMAT FOR NUTRIENT MANAGEMENT PLANS BE IMPROVED UPON (I.E. MORE USER FRIENDLY, BETTER SUMMARIES, MORE STREAMLINED, STANDARDIZED COEFFICIENTS ETC.)? IF YES, EXPLAIN. YES – 5, NO – 1, NO OPINION – 1

- more user friendly
- existing NMP's do not address nutrients other than NPK in a presentable, user friendly format
- need to expand criteria for NMP
- planners should be audited
- format for a plan is specific to the planner (should remain this way)
- update data to determine nitrogen amounts needed by crop

ARE YOU SATISFIED WITH THE CURRENT NSDA REQUIREMENTS FOR A NUTRIENT MANAGEMENT PLAN? IF NO, EXPLAIN. YES – 4, NO – 3, NO OPINION – 1

- believe in the product
- NSDA requirements are adequate for their purposes but they are not adequate for grower purposes
- planners should be audited
- do one year plans

ARE YOU SATISFIED WITH THE NUTRIENT RECOMMENDATIONS PROVIDED THROUGH THE NSDA SOILS LAB? IF NO, EXPLAIN. YES 1, NO 5, NO OPINION 1

- out dated – new varieties
- what are they based on?
- clarification of ppi recommendations
- we never tell them the crop to be grown
- current 3 year plans are redundant due to crop rotation or manure application timing

IN YOUR OPINION, WOULD THERE BE VALUE IN HAVING A NSDA FUNDED NUTRIENT MANAGEMENT PLANNING COORDINATOR? IF YES, EXPLAIN. YES-3, NO-2, NO OPINION-2

- Oversee the program and see what areas we are lacking in. What Nova Scotia has to see is that agriculture is important to our economy and that the industry is suffering in many ways. A lot of people depend on it for their livelihood and it gives back to the economy as well
- Would respond to the identified problems/limitations to the existing program and work toward finding solutions for improvements
- Only yes, if that person was responsible for updating the nutrient recommendations and making sure plans actually meet requirements

CAN THE DELIVERY OF THE NMP PROGRAM IN NS BE IMPROVED? IF YES, EXPLAIN. YES – 6, NO – 0, NO OPINION – 2

- Be excited about it. Every other province has a great one. Why Nova Scotia feels we don't need NMP is beyond me. So many improvements need to be made, hopefully this minister steps up and makes some improvements
- Funding is not extensive enough. Other provinces in Atlantic Canada provide higher funding than NS. A proper renewal is more work than an initial plan yet NSDA says that \$600 is 50% funding. They also say they fund new plans at 100% up to \$1500. There are very little farms

- that cost \$1500 when you include mapping, soil and manure testing and nm planning. The \$1500 was originally set in 2001 based on a 25 field farm. That is 13 years out of date - soil and manure lab test costs have increased, taking the samples and developing plans have increased in costs over time. NSDA has never consulted with anyone on funding for renewals.
- Have a different funding process. The current one is too confusing for most growers and strict
  - Provide easier access to funding for soil sampling & doing 1-year NMP plans
  - If the NSDA was up to date on what a NMP involves, including what a renewal involves. If the NSDA actually believed in the value of a NMP and how they can improve production

**HOW DO YOU THINK NEW NMP INFORMATION SUCH AS POLICIES, REGULATIONS AND RESEARCH RESULTS SHOULD BE COMMUNICATED TO PLANNERS?**

- NSDA – 3 respondents (includes 1 suggestion of the NSDA funded NMP coordinator)
- yearly training/annual updates – 2 respondents
- NSIA – 3 respondents
- NSFA newsletters – 1 respondent

**HOW DO YOU THINK WE CAN HELP PRODUCERS BE BETTER RECORD KEEPERS?**

- I think anyone that has to go through offs is probably already a pretty good record keeper
- Good luck on this one. Some are really good, some are really bad.
- Offer record keeping sessions at industry education events (eg. Hort Congress)
- Develop spread sheets, software that is easy to fill in on their mobile phones.
- Have courses on data keeping programs

**DO YOU THINK THE PUBLIC IS AWARE OF NUTRIENT MANAGEMENT PLANNING?**

- Yes – 0
- No – 6
- Don't know – 2

**DO YOU THINK PROMOTING PUBLIC AWARENESS WOULD BE BENEFICIAL TO THE IMPLEMENTATION OF NMPS?**

- Yes – 3
- No – 4
- Don't know – 1

## ***Presentations***

Three NMP models were presented. The full presentations are available at [www.nsagrologists.ca](http://www.nsagrologists.ca)

### **Ontario Legislated Model**

- The legislation sets out requirements and responsibilities for farmers, municipalities and others in the business of managing land-applied nutrients
- Province to set and enforce standards
- Provincial regulations supersede municipal by-laws that deal with the same subject matter
- Ministry of Agriculture, Food and Rural Affairs and Ministry of the Environment and Climate Change jointly administer the regulation

- The Regulation addresses production, storage and utilization of materials containing nutrients that can be applied to land
- Large livestock farms (greater than 300 nutrient units) are required to follow a nutrient management plan (NMP) for all nutrients applied to land on their farm unit or if a phased-in farm unit is located within 100 m of a municipal well
- A Nutrient Management Plan (NMP) implements limits / restrictions on: application rates, minimum separation distances, ensuring adequate land base for application, and other parameters
- Nutrient Management Strategy (NMS) documents issues such as manure generation from livestock, manure type and quantity, adequate storage capacity and acceptable runoff management. An example of when a NMS is required is for farms with greater than five nutrient units (NU) that are constructing or expanding a livestock barn or manure storage facility
- Farms phased into the regulation are required to ensure that materials generated in the course of the operation are managed in accordance with a nutrient management strategy (NMS)
- A Nutrient Management Strategy (NMS) implements limits / restrictions on: storage, acceptable destinations of nutrients
- NM Strategy and Plan prepared by certified person, kept on farm and subject to inspection

### **Prince Edward Island Voluntary Participation Model**

Prince Edward Island is using a “Soft” approach to getting producers on board. It is experiencing positive trends but it is a slow process.

Plans are eligible for funding under Growing Forward 2 if:

- Completed by a Certified Nutrient Management Planner
- Applicant agrees to fully implement the NMP
- Submitted to PEIDAF for approval prior to March of following year
- In compliance with all other provincial regulations

Funding is not approved if NMP implementation has already begun (i.e. will not fund for previous crop seasons).

Current issues in PEI include:

- Lack of confidence in provincial lab recommendations
- Attempt to overcome adverse effects of disease, pest, physical and soils issues on yields with higher nutrient application rates
- Perception that nutrient application rates in excess of what is recommended will assure higher yields
- Manure storage
- Small scale fertility research experiments not “representative”
- “PEI conditions”

### **Vermont Legislated Model**

All farms with greater than 200 cows must adopt Accepted Agricultural Practices (AAP) which reduce non-point source pollution through the implementation of improved farming techniques. These must be technically feasible as well as cost effective for farmers to implement without financial assistance.

- Manure cannot be applied within 10' of surface water or within 25' of adjoining surface water at points of runoff, or applied in such a manner as to enter surface water
- No manure can be applied to buffers
- Use of fertilizer for the establishment and maintenance of the vegetative buffer is allowed
- Harvesting the buffer as a perennial crop is allowed
- Buffers cannot be tilled except for the establishment or periodic maintenance
- Manure cannot be spread between December 15 and April 1
- Best management practices encouraged through education and peer-to-peer learning
- Farmers learn to develop and implement their own NMP

## ***Facilitated Discussion***

The workshop participants were randomly placed into three groups and asked to brainstorm and present their answers to three questions.

### **What would the ideal NM Program look like for the Nova Scotia circumstance?**

- Easier record keeping
- Take into consideration fertilizer prices and work with that to design plans
- Look at individual goals and what the farmer wants to achieve
- Department of Agriculture would know how many plans are done
- Private sector planners for most plans with Perennia doing some
- Identify incentives such as production, efficiency, \$, good stewardship
- Plans should be made and designed for farmers not planners
- Participatory approach not regulatory as verification is costly and time consuming
- NM Program should be focused on priority areas/commodities, e.g. livestock operations involving a high % of the land base with manure management issues, tillage operations and higher fertility requirements versus perennial horticulture crops with lower fertility requirements, no tillage operations and low % of the land base
- Participatory approach but establish regulations on timing of manure applications, setbacks and licensing of applicators
- Need for the creation of a unified information platform that forms the basis for fertility recommendations in NS – establishment of a working group?
- Simple, easy to understand
- Must be for the public good
- Province sets out what should be included
- Mapping required
- Develop an APP
- More funding for soil testing
- Increased farmer participation
- More flexibility in the funding

### **What are the barriers to getting to that ideal?**

- Plans are complicated and long
- Planners do not trust soil lab results as they are outdated and based on optimum yields, not profit. Based on Ontario results
- Education to farmers so they understand the value
- Education to farmers to assist them in interpreting their plan



- No designated NSDA staff person to develop the program
- Limited funding
- No flexibility in the funding model, for example some producers are more suited to a one year plan
- No standardization of the NMP programs. Should be using the same coefficients
- Need to develop the trust of the industry

### **What are the first steps that need to be taken to move forward?**

- NMP Coordinator either through NSFA, Perennia or NSDA
- Consult industry i.e. farmers and planners
- Update the NMP course
- Up to date lab data required
- Need an education program and resources allocated to NMP
- More funding
- Need to develop commodity based plans
- Need to develop the trust and confidence of industry

### ***Next Steps***

It is clear from earlier meetings with industry, the CNMP survey results and the input from the facilitated discussions that change is desired. All stakeholders would agree that changing or implementing new legislation or regulations is not how we want to motivate change. However, who leads this change and how is it facilitated?

### **Recommendations:**

1. A NM Program coordinator position needs to be established, if not full time at least in a two year term, to help the industry move forward. This position could reside at NSFA or NSDA.
2. There needs to be some updating to the “science” behind the recommendations that come from the NSDA soils lab. This could be accomplished by the establishment of a working group led by the Dalhousie Faculty of Agriculture (in partnership with Perennia, research organizations, producers, consultants) and by incorporating some fertility trials into their annual work plan they might over a period of time build some renewed confidence in the lab results. Funding for such a project would need to be determined.
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4. The Environmental Farm Plan (EFP) award offered annually through the NSFA could be expanded to include a formalize recognition of the NMP portion of the EFP. Profiles and testimonials of producers who make good use of the NM system would be valuable.
5. A simplified and easy to use system to implement and manage NMP is the key to producers utilizing the process. The Vermont model appears to have many advantages. A pilot project developed in partnership between Dalhousie Faculty of Agriculture, Perennia, consultants and industry could be initiated.