

UNDERSTANDING TURF MANAGEMENT

The twelfth in a series by

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THE FERTILIZER ACT

Turf managers in Canada are fortunate to have a Federal Government Act to regulate the sale of materials used to provide plant nutrients for turf. Whereas in the U.S. the regulation of fertilizer materials may change from state to state, Canadian regulations apply uniformly from coast to coast.

The Act, 'for the regulation and control of agricultural fertilizers' is administered by the Plant Products Division, Fertilizer Section, Agriculture Canada. A knowledge of the implications of the Act is something every turf manager should have.

The Act states that 'no person shall sell, or import into Canada, any fertilizer or supplement unless the fertilizer or supplement has been registered as prescribed, conforms to prescribed standards and is packaged and labelled as prescribed'. Essentially this statement means the user is protected against potential health hazards, fraud in marketing, and is provided with a fair marketplace and has the assurance of the purchase of effective products.

The act interprets a **fertilizer** to be 'any substance or mixture of substances containing nitrogen, phosphorus, potassium, and other plant food, manufactured, sold or represented for use as a plant food'. On the other hand, the Act interprets a **supplement** to mean 'any substance or mixture of substances, other than fertilizer, manufactured, sold, or represented for use in the improvement of the physical condition of the soil or to aid plant growth or crop yields'.

The **label** on a fertilizer container is an important item because it contains much valuable information on the correct use of the material. The label is defined to mean 'any legend, word, mark, symbol or design applied or attached to, including in, belonging to or accompanying any fertilizer, supplement or package'.

The Act divides the plant nutrients into two categories - major plant nutrients

which are nitrogen, phosphorus, and potassium, and lesser plant nutrients which covers all the remaining nutrients required for plant growth. Organic matter in fertilizers refers to 'substances of animal or vegetable origin remaining after removal of the moisture and ash fractions' (ash means mineral material).

An important part of the label is the **grade** which refers to the **minimum percentage on a weight basis** of total nitrogen, available phosphoric acid and soluble potash, in that sequence, that is in the fertilizer. The grade is represented by three number which appear on the bag; such as;

10-20-20.

Thus a 25 kg bag of this material would contain 10% (2.5 kg) total nitrogen (N), 20% (5.0 kg) of available phosphoric acid (P₂O₅), and 20% (5.0 kg) of soluble potash (K₂O).

Somewhat strange convention is found in the system of reporting the plant food content of fertilizers. It originated from the methods used by chemists in reporting analysis in the 19th century. Nitrogen was determined by a procedure known as the Kjeldahl method for total nitrogen and is reported as total N. Phosphorus was extracted from the phosphate rock with citric acid and was suppose to represent that fraction of the phosphate in the rock which was available to plants. Thus the terms 'available phosphoric acid', or sometimes 'citric acid soluble phosphate' are used. The chemists in those days always reported their analysis in the form of the oxides of the element, hence phosphorus is reported as P₂O₅. The fertilizer industry has retained the format because an analysis of 20% P₂O₅ looks better than 8.7% P. Likewise potassium, which is soluble in water, is reported as soluble potash and as the oxide, K₂O.

The methods of analysis used to determine the grade are carefully monitored

and are the latest methods published and approved by the Association of Official Analytical Chemists (AOAC).

A second category of nitrogen, recognized as important in the turf industry is called 'water-insoluble' nitrogen. This fraction of nitrogen is of particular interest for slow-release materials. *It is important to remember the category only applies to the nitrogen fraction of the fertilizer.* Specific procedures have been established by the AOAC for this purpose.

To protect the farming population in the early days of fertilizer use from companies selling low analysis materials such as a 2-8-8, the Act requires that all fertilizers shall contain not less than 24% of the major plant nutrients, nitrogen, phosphorus, and potassium. There are exceptions to this regulation, however, and they are

- a customer-formula fertilizer,
- a specialty fertilizer, or
- a fertilizer, the ingredients of which contain

(1) at least 50% animal or vegetable origin supping 25% of the nitrogen in the mixture in a water-insoluble form, and

(2) at least 18% major plant nutrients combined.

A customer-formula fertilizer is defined as a 'fertilizer prepared in accordance with a written formula that sets forth the name, amount and analysis of each ingredient, the fertilizer grade of the total mixture and the signature of the person for whose use for fertilizing purposes it has been prepared'. That means you can formulate a fertilizer for your specific use and have a company prepare a 'bulk blend' of the material without subjecting it to the 24% rule; but it is for your use only, not for resale.

A customer-formula fertilizer which contains a pesticide that is registered under the Pest Control Products Act is exempt from the registration only if the manufacturer (blender) provides the re-

gional office of the Agricultural Inspection Directorate with

- (a) a copy of the label or bill of sale, and
- (b) the name and address of the customer for whose use for fertilizing purposes the fertilizer was prepared.

A 'specialty fertilizer' means a fertilizer recommended for use

- (a) on household plants, urban gardens, lawns, golf course and nurseries,
- (b) in greenhouses, or
- (c) as a source of lesser plant nutrients only (micro nutrients).

This regulation is the reason that many of the turf fertilizers, such as 7-7-7, have been offered for sale. It would not fit the 24% rule, but the low analysis makes the potential for foliar burn and irate customers highly unlikely.

Other materials which are exempt from registration under the Act are the supplements sold for the correction of soil acidity and basicity. Thus limestone materials are not controlled by the Act. Furthermore organic materials such as peat, peat moss, sphagnum peat, bark, saw dust and other fibrous material sold for the improvement of the physical condition of the soil are not covered.

The 1985 revision of the Act addressed the registration of fertilizers containing slow release nitrogen. Section 10.3 of the Act states 'A mixed fertilizer that is represented on its label as being a slow release fertilizer consisting of Isobutylidene diurea (I.B.D.U.), urea formaldehyde, urea-form, or any other chemical compound having similar slow release properties shall contain at least 25% of the total nitrogen guaranteed present in the water-insoluble form'.

The inclusion of micro nutrients is also regulated. Where the label on a fertilizer container or representations made in respect of a fertilizer indicate that the fertilizer contains a micro nutrient such as boron, copper, zinc, molybdenum and manganese the Act states

- (a) such plant nutrients shall be present in sufficient quantity in the fertilizer to be efficacious for the purpose or purposes indicated on such label or in such representation; and
- (b) such plant nutrients at recommended rates shall not be present in toxic amounts.

Further, the Act requires the label contain the following cautionary statement;

"CAUTION: this fertilizer contains (*specify name of lesser plant nutrient*) and should be used only as recommended. It may prove harmful when misused."

Concerns about infractions of the Act should be addressed to the local office of the Plant Products Division of Agricultural Canada (blue pages in your phone book). If you register a complaint, inspectors from the Division will do the sampling of the product and submit it to the appropriate laboratory for analysis. They will also require shipping bills etc., therefore keeping a file on fertilizer materials purchased is essential.

For further information obtain a copy of "Guidelines to the Fertilizers Act" from your Plant Products Office.

To further protect the gullible, fertilizers represented to be used for foliar or seed application must have the following statement on their label - 'Only minor amounts of nutrients applied to foliage or seed are absorbed by plants. Foliar and seed treatments therefore supply only a portion of the three major nutrients (nitrogen, phosphorus, potassium) required for successful crop production. Such a product is recommended only for use as a supplementary source of plant nutrients to a basic fertilizer program that relates to the fertility level of the soil.'

As a result of the regulations of the Fertilizer Act, a fertilizer industry has developed in Canada which is highly professional and which provides the user with reputable products. Nevertheless there remains a fringe group who promote materials of dubious, if any, benefit to the turf. Always ask for their registration under the Fertilizer Act. If none is forthcoming, put your cheque book back in your pocket.

NEW TURF VIDEO



The Ontario Ministry of Agriculture, Food and Rural Affairs, as part of their effort to reduce pesticide use in Ontario by the year 2002, has just released a video called "Integrated Pest Management for Turf". The video is 18 minutes long and introduces the principles of IPM, the importance of proper cultural practices, the basics of monitoring for turf pests, some specific turf insect monitoring techniques and the importance of record keeping. Also featured is the concept of degree days and key indicator plants for predicting insect life cycles and using this information to properly time pesticide applications. This video is an excellent training tool for golf course employees, municipal parks employees, lawn care applicators and master gardeners. The video is available on loan from OAF Audio Visual Library, Visual Communications Services, 52 Royal Rd., Guelph, ON. N1H 1G3, (519) 767-3681, FAX (519) 824-9521. The video can also be purchased by sending your cheque for \$18.00 (includes shipping, handling and taxes), payable to the Guelph Turfgrass Institute, 328 Victoria Road, S., Guelph, ON. N1H 6H8.

A GRASS ROOTS' QUOTE

A good laugh is like fertilizer—it doesn't do any good until you spread it around.

-Anonymous

