

Slag

Blast furnace slag is a by-product from the steel-making industry. Porous aggregates are created when the material is rapidly cooled with water. Slag can increase air porosity and water movement in the soil. However, the material often has a high pH and brittle particles can be broken down in high traffic areas.

Crumb Rubber

Crumb rubber is a secondary resource recycled from scrap automobile tires. This amendment contains graded rubber granules and sometimes additional components, such as compost or mineral materials.

While crumb rubber is not truly inorganic, it behaves much in the same way. Coarse grade rubber crumb amendments reduce compaction stress in soil, increase total porosity, and enhance water movement. Finer particle sizes are being used for topdressing and can protect the crown tissue of plants from abrasion.

Polystyrene

This inert material is a by-product of polystyrene processing. Beads or flakes of polystyrene can reduce the bulk density of root zones and increase aeration and drainage. However, like perlite it tends to separate from the mix and rise to the surface during irrigation. ♦

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In Memory of Bill Carnochan

It is with great sadness that we advise the passing of William (Bill) Carnochan of R.R. #4, Seaforth on February 14, 1999, following a courageous fight with cancer.

Bill has been a valued member of the Oseco team since 1983. Bill's strong work ethic, professionalism, and positive attitude inspired us all. We at Oseco were honoured to have known Bill and to have counted him as both a friend and colleague. Bill will be dearly missed by all who knew him.

Bill is survived by his wife Sharon and four children, Robyn, Jill, Jared, and Kate.

Memorial tributes to the Brain Tumor Foundation, the Canadian Cancer Society, or a charity of your choice are appreciated. A Bill Carnochan Memorial Trust Fund is being set-up by the Carnochan family to be used within the community for scholarships and awards. If you wish further details, please contact the Carnochan family.

— Paul Eros, OSECO INC.

Editor's Note: The STA again extends condolences to Bill's family and friends. He was not only an excellent salesman and highly respected in the industry, but a kind friend.

Ransomes® AR 250 Sports Field Rotary Mower



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The AR 250 is Ransomes' answer to cutting sports fields versus conventional mowers. The double-bladed 5-Gang rotary mulching decks allow an extremely fine finish without the costly repairs associated with adjusting reels to bedknife, backlapping and reel sharpening.

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The Seed Label

SUMMARIZED BY MICHAEL BLADON

Do you understand how to interpret a seed label? International seed laws are a tangle of rules and regulations which present some real challenges for the seed grower and the seedsman. The seed trade in Canada is governed by the Seeds Act which provides consistent legislation across the country. In the U.S.A., each state sets its own seed laws and standards.

If we examine Canadian seed law, specifically as it relates to turf and revegetation species, we can obtain a good idea of how the legislation affects both the producer and the consumer. Canadian seed laws can be divided into two categories: one relating to the agronomic performance of varieties of species, the other relating to the mechanical and genetic purity of the seed. The Seeds Act requires that before offering for sale, the variety being offered must have been granted a license. Licensing is the responsibility of Agriculture Canada. The determination to give a license is based on several criteria. Most important is the way the grass performs in relation to those varieties already licensed. Another is how much seed is available. In this way, a well designed licensing system gives the purchaser ample protection and emphasizes continual improvement in the production of new varieties.

The other major area of seed law is in the regulation of the quality of seed offered for sale. In Canada, all seed put up for sale must be labelled and meet the grades set out in the tables of the Seeds Act. Seed which does not conform to these standards is ranked as "rejected." It is illegal to sell "rejected" seed in Canada. Thus our seed laws perform the role of "quality control" which ensures that the seed meets the grade stated on the label. The three grades outlined by the Seeds Act are Canada No. 1, 2, and 3. Canada No. 1 is asked for most commonly. Grades differ in the allowable percentages of weed seeds, other crop seeds, and germinations.

Labelling the genetic or pedigree class of the seed is also controlled. Only pedigreed seed, which, when speaking of seed of commerce, is "certified," assures the buyer that he gets the variety purchased. In Canada, practically all seed has to be pedigreed if it is identified by a varietal name. The certified label is universally coloured blue, so the terms "certified" or "bluetag" are the same. The label will read Canada No. 1 Certified only if all seed in the container is of one cultivar (e. g. Baron, Midnight, Touchdown).

Quality conscious seed buyers should recognize that the Seeds Act is based on minimum germination and maximum weed contents. If the germination meets a stated minimum and the weed and other crop content does not exceed certain maximums, then the seed is labelled within its grade. Therefore, great variations can exist within the grade No. 1 seed. There could easily exist a 15% difference in germination and an even more dramatic difference in weed seed and other crop seed content. For instance, a farmer who bought red clover would not object to that clover seed containing 0.5% alfalfa seed. But a sod grower buying Kentucky bluegrass would complain about 3% annual bluegrass or

bentgrass in his seed as it would create a serious problem in his crop. If you wish to verify the quality of a particular seed purchase, the seller maintains records for each lot and both independent and government laboratories will perform this service.

Canadian seed laws, as in most countries, work well to protect the purchaser and the seller. They guarantee the adequacy of the seed to establish a crop under most conditions. They assure seed that is healthy, free of disease, and adaptable for the required climate, area, and purpose. Lastly, they provide for orderly marketing and distribution of the product.

The seed label does not provide information on the size of seed of the different kinds that are included in the mixture. Not all seed are the same size and so a mixture may contain a relatively small percentage by weight of a small sized seed but this would amount to a large percentage on the basis of numbers of seed.

Seeds per Pound of Common Turfgrasses

Turfgrass	Seeds per Pound
Colonial bentgrass	6,200,000
Kentucky bluegrass	1,300,000
Turf-type perennial ryegrass	350,000
Turf-type tall fescues	230,000

As well, seed size is related to seeding rate. Roughly 10 to 15 seed are needed per square inch. While this seems like quite a bit, it takes this much in the establishment process to protect the soil and create the most desirable microclimate for seedling establishment. On average, a fine sports field will have close to five mature plants per square inch.

References

- Pickscene, January/February 1984. Seed Legislation and How To Read a Seed Label.
- Roberts, Eliot. C. The Lawn Institute 1991-92. The Seed Label (Topic sheets). ♦

CERTIFIED SEED



Mustang
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Resources: The Dirt on Grubs

EXCERPTS FROM THE OMAFRA FACTSHEET



Grubs, the term given to the larvae of scarab beetles, are frequently found feeding on the roots of turf and pasture grasses. Damage caused by white grubs initially resembles drought stress. As grub feeding continues, areas of fresh turf begin to wilt and turn brown. In areas where their numbers exceed five to 10 per one-tenth of a square metre (1 sq. ft.), dead patches of turf will result.

Turf that has been damaged by white grubs will lift away from the soil easily because the roots have been eaten and they no longer anchor the turf to the soil. Often, skunks and other small mammals will pull back the turf in search of a meal of grubs. The damage is usually more extensive than that caused by the grubs, but can be repaired by replacing the sod, tamping or rolling the surface, and watering the area.

In parts of Ontario, there are three species of white grubs which infest lawns—European chafer, June beetle, and Japanese beetle. The most common species is the European chafer which has come from Europe and has invaded much of the southern portion of the province. It occurs along Lake Erie and has spread to areas north of London and Kitchener and east of Toronto. Another species, also imported, is the Japanese beetle and it has become established in some areas of the Niagara Peninsula and the Hamilton-Wentworth region. Grubs of both species cause considerable damage to turfgrass, while the Japanese beetle adult is a serious pest of a large number of fruit and ornamental trees and shrubs. June beetles are native to North America, with ap-

proximately 152 species occurring in the United States and Canada. In Ontario, there are three principal species.

Grubs of all species have soft, white, C-shaped bodies with tan or brown heads and six prominent spiny legs. They are quite small when first hatched (3-4 mm long), but at maturity, they can reach a length ranging from 2 cm for a Japanese beetle larvae to 4 cm for the June beetle grub. A healthy grub is milky white in colour, with the dark contents of its gut showing prominently through the cuticle at the hind end of the abdomen. A distinguishing feature among all three species is the pattern of spines occurring on the underside of the tip of the abdomen.

For more information on life history, cultural control, monitoring, and chemical management, access OMAFRA's FACTSHEET *Grubs in Lawns* on the internet at <http://www.gov.on.ca/OMAFRA/english/crops/facts/97-023.html> or telephone 1-888-466-2372 and request order #97-023. You might also check out OMAFRA's Turf Hotline at 1-888-290-4441, which is updated weekly on Friday mornings. ♦

"My grandfather once told me there are two kinds of people: those who do the work and those who take the credit. He told me to try to be in the first group, there was less competition there."

— Indira Gandhi

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News Releases

SportGrass®: Sports Turf for the New Millennium

Dol Turf Restoration Ltd. is pleased to announce that they have recently become the Canadian supplier and distributor for SportGrass®. SportGrass is ideal for almost any athletic field. It is the first turf product to combine the toughness and wear resistance of synthetic turf with the playability of natural grass.

The SportGrass system consists of a 100% natural grass playing surface grown in a layer of amended sand. Within the layer of sand are polypropylene grass blades tufted into a woven backing. Because the roots of the grass grow down through the synthetic blades and woven backing, the crown and root system of the plant are protected.

Even during heavy play, SportGrass maintains a consistent and level playing field. The synthetic blades and woven backing form a matrix with the root system of the natural grass. If the natural grass blades are temporarily worn away, the stability of the field is retained, and play can continue.

SportGrass can be installed in any climate with any type of grass, from bent to Bermuda. When properly maintained, SportGrass should last considerably longer than synthetic turf playing surfaces.

SportGrass is truly a breakthrough in athletic field surfacing. Never before has one product been able to combine the playability of natural grass with the durability of synthetic turf.

For more information, call Dol Turf Restoration at 1-800-794-9664.

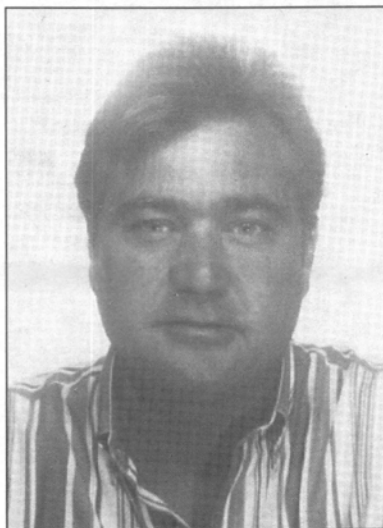
New Addition to the Dol Turf Specialists Team

Dol Turf Restoration Ltd. is pleased to announce the appointment of Kerry Carrothers to our team of Sports Turf Specialists. Kerry, formerly of Hutcheson Sand and Mixes, brings 10 years of turf related sales experience with him.

We are a company committed to providing the best sports fields possible. Our list of services include topdressing, overseeding, aeration, fertilizing, sports field construction and reconstruction, as well as the installation of tile drainage and SportGrass®.

We also provide a sports field consulting service which includes safety audits, risk management, soil analysis, and recommendations to establish economical and effective turf programs.

Kerry would be happy to provide you with information regarding any of our products or services. He can be reached at 1-800-794-9664 or on his mobile at 416-717-4221.



Did You Know?

- ◆ Southwestern Ontario has the greatest frequency of tornadoes in Canada.
- ◆ The warmest year on record for most of Canada was 1987.

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In Memory of Neil Campbell: 1931-1999

Neil Campbell passed away on Sunday, January 10th at the Kitchener-Waterloo Health Centre in his 69th year. Neil was diagnosed with lung cancer only six weeks prior. He leaves Eleanor, his wife of 45 years, son David, and daughter Gayle. Neil was predeceased by another daughter Jane in 1981.

Neil worked with the City of Kitchener for 25 years as a Horticulturist and more recently as Manager of Horticulture. He made many contributions to Kitchener with his work in Victoria Park, where he designed many of the floral displays and tree plantings.

Kitchener Parks and Recreation has a horticultural training program based on the Ontario Diploma in Horticulture Extension Education Program at the University of Guelph. This program was Neil's idea and it was incorporated into the Union Job Classification System and the collective agreements. Neil was awarded a

Life Membership from the ODH in Guelph for his contributions in education as his idea has spread through many other categories including cemeteries, golf maintenance, and arenas, as well as through other communities.

Neil had an extensive knowledge of turf maintenance from his work and experience with Ruthven Sod and knew his equipment well. He oversaw an excellent sports field program from that experience.

Neil Campbell could be put in the *most memorable* of people category. His interest in and visit to the Isle of Man to watch motorcycle races, for example, illustrated his passion for life. After he retired, he drove Yonge Street in Toronto (called the longest street in the world) to Rainy River where he had lunch with the mayor. During a fly-in fishing expedition north of Sudbury on a lake with only one other camp, Neil pulled from his tackle box a book of poems by Robert Service and we read poetry around the campfire for sev-

eral evenings. Neil was a master of quips and one-liners. He had a great sense of humour and was quick with his wit amusing many around him.

Neil will not be easily forgotten as he made a significant impact on Kitchener's Parks and in particular Victoria Park where another chapter in the park's rich history is now complete. An oak tree was planted in Victoria Park on May 7th in Neil's memory.

We appreciate Neil's contributions—he truly made a difference. ♦

— Tom Clancy, Kitchener
Parks & Recreation

Editor's Note: Neil was an originating member and long-time friend of the Sports Turf Association. He hosted our field day in 1990, attended STA sessions at the OTS, and was committed to athletic field maintenance in the City of Kitchener. We extend our condolences to Neil's family and friends.



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