

Abbotsford Soil Conservation Association

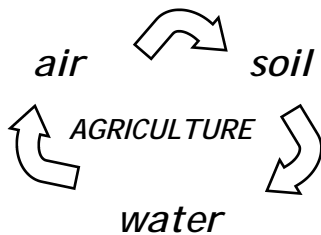
The Soil Keeper

February 2003

Volume 1, Issue 1

SE2 and Soils – a missing link?

SE2, air quality and human health—these have been the main themes in media reporting on SE2. What about the full cycle of air > soil > water? This cycle is critical for local sustainable agriculture production. Any proposed industrial project that impacts local agriculture should be a great concern for all Abbotsford residents. Why? Abbotsford generates **20% of the total provincial farm gate value!!**



SE2 combined with the other urban and industrial emissions could amount to “death by a thousand cuts” for local agricultural production. The SE2 emissions will add to the impact of poor air quality on soils and crop production.

Some of the projected emissions by SE2 that will add to impacts on soil and crop production include nitrogen oxides (NOx) and sulphur dioxide, volatile organic compounds (VOCs), ammonia and particulate matter (PM10).

Ground-level ozone is a by-product of these emissions. It is formed by the reactions of various chemicals including VOCs and NOx in the presence of heat and sunlight. Particulate matter can be produced directly or formed in the atmosphere. It forms when there are interactions between physical particles such as dust and chemical compounds such as ammonia. There are two main concerns with the emissions produced by SE2. One is that soils become more acidic and the other is the direct impact of PM10 and ground-level ozone on crop productivity.

SOIL pH scale

pH 7.0 = neutral
pH < 7.0 = acid
pH > 7.0 = alkaline

In areas of high total rainfall such as the Lower Fraser Valley, alkaline elements such as calcium and magnesium are washed from the soil resulting in acid native soils. Nitrogen and sulfur oxides react in the environment to result in acid rain which enters soil and causes further acidity.

Why are acid soils an issue? Soil pH is a measure of acidity. Soil chemistry is very complex but in general, soil acidity can hurt crop production in two ways.

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Soils and Local Agriculture - Hand-in-Hand at AgriFair

FACT: Abbotsford generates **20% of the farm income for the whole province**

FACT: There are **58 different soil types** in Abbotsford.

These agriculture and soil facts were part of the theme for ASCA's booth at AgriFair. The theme was "Local Agriculture, Soils and You". **Soil conservation and local agriculture go hand-in-hand**, we can't have one without the other.

Abbotsford soil maps were posted at the booth so that participants could locate their rural property and figure out which soil type they live on. Once the soil type was identified, they were also able to look up the soil description. **Knowing the soil type and description for a property helps landowners make better management decisions.** It can help with the decision to buy a property for a particular use or when planning



ASCA Coordinator Sandy Traichel talking soil conservation during AgriFair

construction of buildings. If you have soil management issues, obtain a soil survey report – for more info, contact the ASCA Coordinator, Sandy, at 604-556-3732.

The **AgAware BC** game, "Where's Agriculture", was enjoyed by numerous kids. They discovered interesting facts about non-food items that contain agricultural products. For example, did you know that:

- ▶ Diabetic test strips contain an enzyme found in horseradish?
- ▶ The airbag in your car contains cornstarch?

Our annual promotion, "Practice Safe Soil—Keep it

Covered" was a big draw. About 300 bags of cover crop seed were given to local residents for planting in their gardens.

A big thanks to our sponsors:

- ◆ TerraLink Horticulture Inc.
- ◆ Abbotsford Printing Inc.

- ◆ Makara Farms Ltd.
- ◆ Wisbey Veggies
- ◆ Kato's Nursery



Support Your Local Farmer!

As part of the local agriculture theme, coupons for free local blueberries and carrots were donated from **Makara Farms (blueberries)** of Matsqui Prairie and **Wisbey Veggies (carrots)**, of Sumas Prairie.

ASCA wanted to:

- ◆ Raise awareness of local producers
- ◆ Promote local, high quality fresh products

The growers received a 5 to 10% response from the promotion.

Please go to www.bcfarmfresh.com for product and contact information for local producers.






Your Partner in Agriculture!

TerraLink is the convenient, one-stop outlet for producers in the Abbotsford area. Services include: soil analysis, technical information, custom spreading, crop spraying, and soil fumigation. Rental equipment is available for handling bulk fertilizer and lime.

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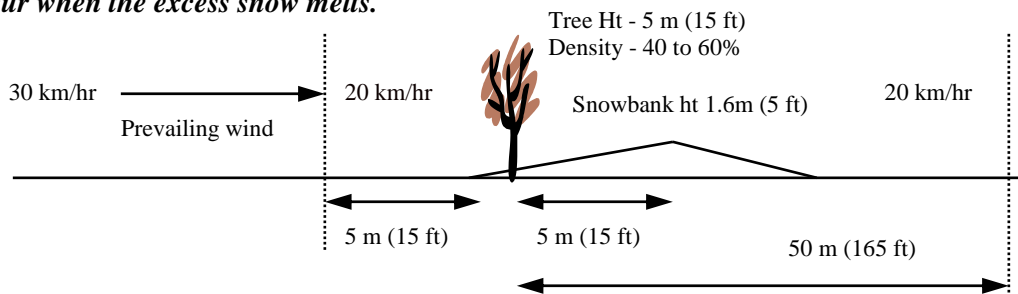
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STOP Blowin' In The Wind...

In November 2002, ASCA held a tree planting ceremony to celebrate the completion of the third windbreak "greenbelt" planting along the Sumas Canal since 1999. European ash and Colorado spruce were planted for a total length of 750 meters north of No. 3 Road. The ceremony marked the finish of a total of 5 km of windbreak plantings along the west side of the Canal. Sumas Prairie residents are very familiar with the northeast arctic outflow winds that howl across the Prairie during winter. While soil erosion is often associated with the "Dirty Thirties", those who have lived on the Sumas Prairie since the late 1980's remember drainage ditches filled with wind-blown soil. Thanks to 10 years of effort by local farmers and soil conservation groups, cover crops and relay crops (see article on pg 6) are now a regular part of soil management. These practices reduce soil erosion due to wind and *save the City of Abbotsford thousands of taxpayers' dollars in ditch maintenance costs.*

Wind erosion is a problem because it removes the light, fertile parts of soil—organic matter, clays and silts. Farmers are now doing a good job of protecting soils from wind erosion. The ASCA supports their efforts by planting rows of trees or windbreaks to reduce wind speeds across the Sumas Prairie. Many farmers in the Sumas Prairie are concerned about new windbreaks due to negative past experiences with them. Former windbreaks consisted of Lombardy poplar, Black cottonwood or Red alder, which were messy, invasive, and disease-prone. The main species that is being used in new plantings is a European ash (*Fraxinus excelsior*) that has been used in the Netherlands for many years. It can withstand high winds and does not self-seed.

Wind speed can be controlled by planning the height, density, placement and length of your windbreak. A windbreak slows wind speed on both the windward and leeward side. In both cases, the amount of reduction depends on the height of the windbreak. For example, it is possible to slow the wind speed a distance of 30 times downwind from the tallest part of the windbreak. Windbreak density is also very important. It is the amount of space taken up by the branches/leaves compared with the area of height and width of tree row. A dense windbreak will stop the wind but does not protect a very large area behind it. A density of 40 to 60% will protect a larger area behind the windbreak and still provide good soil erosion control. Tree rows should be placed at right angles to the prevailing winds. Finally, the length of a windbreak should be 10 times longer than the height for the best protection. *On the Sumas Prairie, trees should be planted on the SOUTH and WEST sides of roads and ditches to prevent snow gathering behind windbreaks on roads and in ditches. Snow is a road hazard and flooding in ditches may occur when the excess snow melts.*



Example of a windbreak for snow control

(Continued on pg 4)

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Fraser Valley Relay Cropping Takes Off in 2002

Orlando Schmidt, BCMAFF

The year 2002 may mark the time that relay-cropping finally took root in the Fraser Valley. Relay cropping is a system of planting Italian ryegrass between corn rows when the corn is typically at the 3 to 8 leaf stage. With this technique, the soil protecting, nutrient capturing cover crop is already established and growing when the corn is harvested. The bonus is that the relay crop provides high-yielding and high-quality forage in early spring before corn planting. Over the past few years, 70% of corn fields in Whatcom county were relay-cropped, but only one or two BC farmers used this technique exten-

sively. This year, however, about 1400 corn acres were relay cropped throughout the Fraser Valley. This was thanks to the efforts of 'Vyefield Farms' and 'Western Custom' who offered a custom relay-crop planting service and the group of farmers who planted



*Kambro Farms,
Matsqui Prairie, Jan 7 2003*

their own. We estimate that 7% of the corn acreage in the Fraser Valley was relay cropped in 2002.

The mild fall and winter has so far provided excellent growing conditions for the ryegrass after corn harvest. As of early January 2003, some of the best fields are already yielding as much as 4 tonnes/hectare on a dry matter basis (1.6 tons/acre). The crop was big enough on one farm that it was harvested for silage in mid-November. This may well be a first!

Following the success of 2002, expect to see further growth in relay-cropping in 2003.

Windbreak Plantings *(continued from page 3)*

Windbreak plantings do much more than prevent wind erosion. Economic, environmental, and landscaping benefits can also be achieved. Windbreaks can provide > **visual screening and dust control** < > **alternative wood and food products** < > **energy conservation - cut winter heating costs and summer cooling costs** <. They also provide environmental and landscaping benefits such as > **prevent sediment from entering streams** < > **creation of wildlife habitat** < > **beautifying the farm landscape** < .

If you are interested in creating a windbreak on your farm, our coordinator (Sandy Traichel) can help you access information. The ASCA has an excellent handout on the subject. If you want to check out a website to get started, go to <http://www.agr.gc.ca/pfra/shbpub/shbpub24.htm>. For more info, call Sandy at 604-556-3732.

Without the generous assistance of sponsors, this project would not have been possible. The ASCA would like to thank the following farmers, individuals and organizations for their support of the project:

- ◆ Van Eekelen Enterprises
- ◆ Jacobs Farms Inc.
- ◆ Hodgins-Smith Farms
- ◆ Frank Wright and the City of Abbotsford Sumas Dyking, Drainage and Irrigation District crew
- ◆ Lisa Fox and the Abbotsford Land Trust Society
- ◆ TD Friends of the Environment Foundation
- ◆ Tree Canada Foundation/Government of Canada/TransCanada Pipelines Ltd.
- ◆ The Department of Fisheries and Oceans

SE2 and Soils

(Continued from page 1)

Soil pH affects “food” available for plants. It also affects plant diseases that live in the soil. At a soil pH below 6.0, nutrients such as calcium (Ca) and phosphorus (P) are less available for plant growth. Some elements in soil such as aluminum become highly concentrated in acid soils and can be toxic to plants. Crop diseases such as the fungus, clubroot, can live in acid soils and hurt growth of local crops such as broccoli, brussels sprouts and cauliflower. Soil acidity can also affect the movement of metals such as mercury, arsenic chromium (these are also potential SE2 emissions), which may affect water quality.

Particulate matter (PM10) and ground-level ozone can also hurt crop productivity. In many crops, ground-level ozone reduces yields through a complex combination of damage to plants and increased sensitivity to disease, pests, and other environmental stresses. PM10 can affect crops in two ways. It settles on crop leaves. This hurts the plant’s ability to turn sunlight and carbon dioxide into yummy vegetables. It also scatters sunlight, which lowers the crop’s ability to maximize use of sunlight. Additionally, PM10 containing heavy metals can contaminate soil and result in toxicity to plants.

SE2 reassures us that their emissions will not significantly impact our air quality. The ASCA calls on the National Energy Board to help us make sure that Abbotsford’s valuable agriculture industry is protected from any further impacts to air quality. While we wait for the NEB hearings on SE2, let’s not forget that there is **immediate action you can take to improve local air quality**. From an air quality point of view, the true cost of transporting food that we can produce right here, from places such as California, may be too high. We need to think of the “Buy BC” campaign as a serious air quality improvement program in addition to promoting BC products. Secondly, excessive use of the single occupancy vehicle is another area in which we can make different choices. So **buy local produce** and **think before you drive**. The effort to make sure power generation does not further pollute our airshed is very important.

The ASCA applauds and encourages Abbotsford citizens to keep up the effort against SE2. We will be joining Abbotsford citizens at the NEB hearings and hope to present our case regarding impacts on soils and crops.

Abbotsford generates 20% of the provincial agricultural economy. A healthy air < soil < water cycle is critical for local agriculture. SE2 cannot downplay additional emissions and their effect on air quality.

The Abbotsford Soil Conservation Association is looking for a motto! Can you help us?

Some ideas:

- ◆ Save Our Soil (SOS)
- ◆ Dirt—Where Would We Be Without It?

**Enter the Motto Contest!
Win a Book Prize!**

To enter, fill in the form and send us your motto via snail mail (38900 No. 4 Road, Abbotsford, BC, V3G 2G2) or email (humoferric@pacificcoast.net):

MOTTO SUGGESTION:

NAME: _____

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Abbotsford Soil Conservation Association

38900 No. 4 Rd.
Abbotsford, BC
V3G 2G2

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for the Community*

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*The Soil Keeper is a regular publication of the
Abbotsford Soil Conservation Association, a non-profit
society registered in the Province of BC.*

Key issues the group will be addressing are the following:

- Soil conservation and related practices
- Water Quality and Nutrient Management
- Increased public awareness and education

*The ASCA takes a cooperative approach to solutions re-
garding these issues, focusing on sustainable land steward-
ship strategies that are economical and effective.*

Printing services provided by Abbotsford Printing Inc.

Project Coordinator:
Sandy Traichel
604-556-3732
email: humoferric@pacificcoast.net

Fill in the form below and send it in to the ASCA to activate your membership today!

Name: _____

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