

Demonstration Site

Site 1 - Poultry Boiler Operation, Abbotsford BC

Goals: Dust mitigation, odour control, visual screen

Inventory:

- ❑ **Target Locations:** neighbours' residences, blueberry field
- ❑ **Source Location:** double story poultry barn, unhooded fans blowing south
- ❑ **Operational Requirements:** maintain access for haying; offset trees under power lines and buried gas main
- ❑ **Winds:** prevailing from SW (summer), prevailing from NE (winter)
- ❑ **Site Topography and Soils:** flat site, moist clay soil, deep matted grass layer on surface, no evidence of compaction.

Design:

- ❑ Single row of 'Excelsa' cedar around perimeter of field adjacent to barn.
- ❑ Where a power line crosses the buffer, a shorter cedar variety, 'Technito' was planted to avoid overhead conflict with the lines.



View of existing site



View of future vegetative buffer

Site Synopsis:

This farm is a broiler and dairy operation in Abbotsford. The producer was concerned about the impact of dust and odour from his double story broiler barn on the homes across the street and the blueberry farm next door. During the summer the farm experiences strong winds from the southwest. Depending on the time of day and season, winds blow strongly from the northeast. The producer hoped that a vegetative buffer would intercept the wind all year round and reduce the amount of dust and odour impacting his neighbours, particularly when the barn is blown out between bird cycles.

The property also has a small dairy. The field adjacent the barn is harvested for hay for the dairy operation. The producer preferred that the vegetative buffer not take up too much space or impede access for haying. A simple, single row vegetative buffer of 'Excelsa' cedar was planted on the fan side of the broiler barn. The trees were planted on the perimeter to minimize space consumption. An opening was left at the back of the barn to allow access for farm machinery. There were adjustments made to avoid conflicts with overhead power lines and an underground gas main. These adjustments included offsetting the trees where possible and planting a shorter cedar variety below the power line.

Demonstration Site

Site 2 - Poultry Broiler Operation, Abbotsford BC

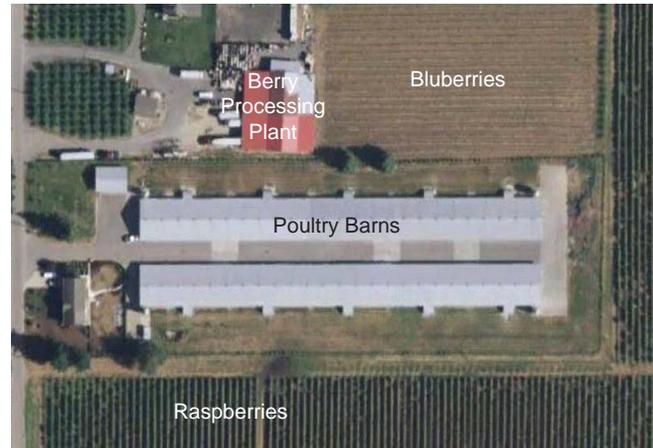
Goals: Dust mitigation, energy savings (summer), visual screen

Inventory:

- ❑ **Target Locations:** blueberry and raspberry fields, berry processing plant
- ❑ **Source Location:** two single story poultry barns; hooded fans blowing away from barns
- ❑ **Operational Requirements:** no restrictions
- ❑ **Winds:** prevailing from SW (summer), prevailing from NE (winter)
- ❑ **Site Topography and Soils:** flat site, moist clay soil, no evidence of compaction.

Design:

- ❑ Single row of 'Excelsa' cedar along north side of barn to fill in gaps in existing tree row.
- ❑ Single row of shrubs (Spiraea 'Goldmound', shrubby cinquefoil, purple leaf sand cherry) in front of cedar.
- ❑ Single row of Colorado blue spruce east of barns.
- ❑ Single row of 'Crimson King' maples along south side of south barn.

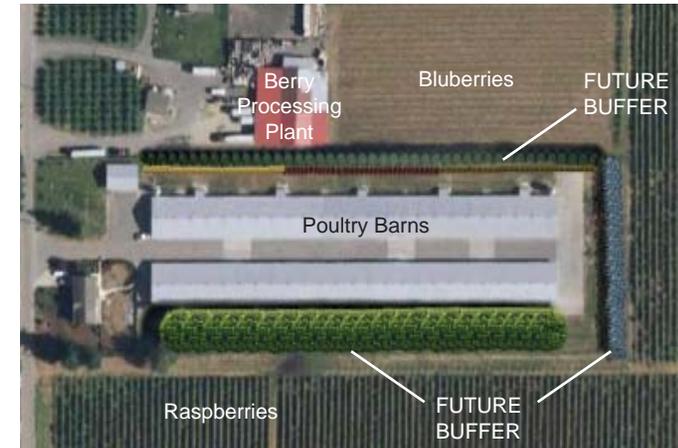


View of existing site

Site Synopsis:

This farm is a broiler operation in Abbotsford surrounded on three sides by berry crops. The producer was concerned about the impact of dust on berry crops and a berry processing plant next door to his two single story broiler barns. During the summer the farm experiences strong winds from the southwest.

A partial row of cedars was already growing along the north side of the barn. To increase dust interception, additional cedars were planted to fill in the existing tree row. A gap had developed between the ground and the lowest branches of the existing cedar trees. To increase



View of future vegetative buffer

dust interception in this open space, a row of shrubs was planted directly in front of the cedars. The long length of the buffer provided an opportunity to test the effectiveness of three different shrub species.

The buffer was extended along the east perimeter by planting a row of Colorado blue spruce. This species was chosen to test a conifer alternative to cedar species.

Maple trees were planted along the south field with the goal of eventually providing shade to help cool the south barn during the summer months. The maples will also provide a pleasing visual screen when viewed from the road.

Demonstration Site

Site 3 - Poultry Broiler Operation, Chilliwack BC

Goals: Dust mitigation, odour control, visual screen, energy savings (winter)

Inventory:

- ❑ **Target Locations:** neighbouring residences to north and east
- ❑ **Source Location:** double story poultry barn, hooded and unhooded fans on east side of barn
- ❑ **Operational Requirements:** maintain pasture access for periodic grazing of cows and horses; trees must be non-toxic to livestock.
- ❑ **Winds:** prevailing from SW (summer), prevailing from NE (winter)
- ❑ **Site Topography and Soils:** flat site, moist clay soil, no evidence of compaction. Seasonal flooding in neighbour's horse paddock which affects edge of pasture. Soil will be required to raise low, flooded area.

Design:

- ❑ Single row of 'Smaragd' cedar along east perimeter fence.
- ❑ Single row of 'Patmore' ash in front of cedars.
- ❑ 'Excelsa' cedars at either end of barn perpendicular to 'Smaragd' cedars.

Site Synopsis:

This farm is a broiler operation in Chilliwack. The double story barn is in close proximity to many residences. The producer was concerned about the impact of dust and odour on the neighbourhood. They wished for the buffer to be aesthetically pleasing and provide a visual screen from the subdivision to the east. During the summer the farm experiences strong winds from the southwest. During the winter, heavy winds blow from the northeast. The producer also hoped the buffer would provide a wind shelter leading to possible energy savings during the winter.

The narrow field adjacent the emission fans is used periodically as pasture to graze cattle and horses. For this reason it was important that the buffer take up as little space as possible to maintain grazing opportunities. Due to the presence of livestock tree species had to be non toxic. Prior to tree planting, soil had to be imported to raise an area prone to seasonal flooding within the pasture.

A single row of narrow hedging cedar was planted along the property fence. Short rows of wider, taller cedars were planted at each end of the field to enhance dust and odour capture as well as increase wind shelter in the winter.

A single row of ash trees was planted in the pasture to provide earlier height to the buffer (the hedging cedar is slow growing) and enhance the visual screen.



View of existing site



View of future vegetative buffer

Demonstration Site

Site 4 - Poultry Layer Operation, Abbotsford BC

Goals: Dust mitigation, odour control, visual screen, energy savings (summer and winter)

Inventory:

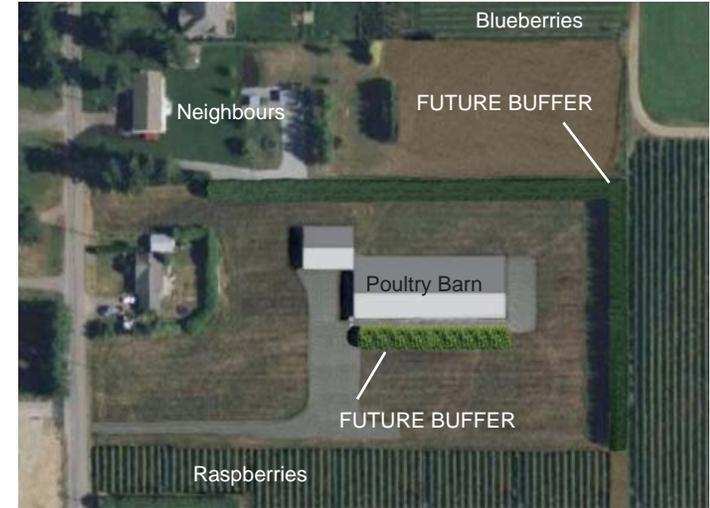
- ❑ **Target Locations:** neighbouring residences, berry crops
- ❑ **Source Location:** double story poultry barn, hooded fans on both sides of building
- ❑ **Operational Requirements:** maintain vehicle access to rear of barn; keep field surrounding barn open; setback trees from hose bib and water main
- ❑ **Winds:** prevailing from SW (summer), prevailing from NE (winter)
- ❑ **Site Topography and Soils:** flat site, moist clay soil, no evidence of compaction.

Design:

- ❑ Double row of 'Excelsa' cedar around north and east perimeters of field adjacent to barn.
- ❑ Single row of 'Autumn blaze' maples along south side of barn.



View of existing site



View of future vegetative buffer

Site Synopsis:

This farm is a layer operation in Abbotsford. The producer wanted to minimize the impact of dust and odour on his neighbours and the adjacent berry crops. The buffer would also act as a visual screen from the neighbours and road. During the summer the farm experiences strong winds from the southwest, while in the winter winds blow predominately from the northeast. The producer hoped to gain energy savings by shading the barn in the summer and wind shelter in the winter.

A double row perimeter buffer of cedar trees was planted along the north and east sides of the barn to intercept dust and odour particles. This row will also act as a windbreak during the winter months.

A single row of maple trees was planted along the south side of the barn to provide summer shade and act as a visual screen.

Demonstration Site

Site 5 - Poultry Layer and Raspberry Operation, Abbotsford BC

Goals: Dust mitigation

Inventory:

- ❑ **Target Locations:** raspberry fields
- ❑ **Source Location:** single story, tunnel ventilated barn
- ❑ **Operational Requirements:** maintain access for berry machinery; keep biosecure zone around barn clear; no trees to be planted on south side of barn to maintain vehicle access
- ❑ **Winds:** prevailing from SW (summer), prevailing from NE (winter)
- ❑ **Site Topography and Soils:** flat site, moist clay soil, no evidence of compaction. Existing trees are healthy.

Design:

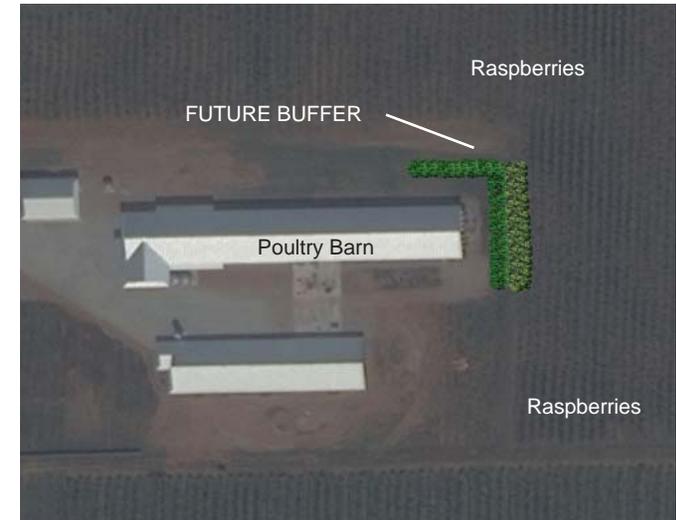
- ❑ Double row of 'Excelsa' cedar extending out from existing tree rows in 'L' shape.
- ❑ Single row of 'Tristis' poplars east of tunnel vents, behind double cedar row.



View of existing site

Site Synopsis:

This farm is a layer operation in very close proximity to berry crops. The barn is tunnel ventilated directly into the adjacent raspberry field. Over recent years the producer has taken measures to reduce the travel of dust by planting two rows of cedar hedging in front of the fans. During prior berry seasons the producer erected a temporary screening structure to help capture dust between the trees and the fans. In the spring of 2012 a permanent metal shield (not shown) was installed in place of the seasonal temporary screen.



View of future vegetative buffer

To improve dust interception a 'U' shaped buffer was designed around the end of the barn to extend out from the two existing rows of cedar trees. Since the south side of the barn had to be kept clear for vehicle access one side of the 'U' was removed from the plan.

The cedar trees will take several years to grow to an effective size, so a row of fast growing poplars was planted between the last row of cedars and the first row of berries. The poplars will enhance the ability of the buffer to intercept and capture dust during the peak months of berry season.