

Organic/Natural Amendments

Nutrient	Nitrogen N	Phosphorus P	Potassium K	Calcium Ca	Magnesium Mg	Sulphur S
Alfalfa Meal	3	0.5	3	8	0.3	0.1
Corn Gluten Meal	8/9/10	0	0	0	0	0
Soybean Meal	7	1.2	1.5	0.4	0.3	0.2
Seaweed/Kelp	0.7/2	0.8/3	3/5	0.2	0.1	0
Wood Ash	0	2	6	20	1	0
Blood Meal	15	3	0	0.3	0	0
Bone Meal (fine)	4	14	0	15/22	0.6	0.2
Feather Meal	10	0	0	0	0	0
Fish Products	10	6	0	6	0.2	0.2
Green Sand	0	1	8	0.5	3	0.1
Gypsum	0	0	0.5	29	0.4	23
Dolomite Lime	0	0	0	21	12	0.3
Rock Phosphate	0	25	0	0	0	10
Coffee Grounds	2	0.3	0.3	0.1	0.1	0
Grass Clippings	4	1	3	8	3	0.5
Sawdust (Shavings)	0.2	0	0.2	0	0	0
Compost/Compost Blend	1/2	0.5/2	1/2	0.3/1	0.2/1	0.3/1
Chicken Manure	2	1.5	0.5	2	0.2	0.1
Cow Manure	0.5	0.2	0.5	0.2	0.1	0.1
Horse Manure	0.6	0.2	0.5	0.5	0.1	0.1
Sheep Manure	1	0.3	1	1	0.1	0.05
Planted Cover Crops i.e. clover, barley, wheat, rye	0.75/1	0.2	0.5/1	1.5	0.5	0.1

Natural/Organic Lawn Care: 12-Month Program

December to February	<ul style="list-style-type: none">• stay off lawns as much as possible• do not park or keep heavy machinery on lawn
March to April	<ul style="list-style-type: none">• rake up leaves and any other debris on lawn• start the mowing season with a sharp blade
Mid April to May	<ul style="list-style-type: none">• apply pre-emergent weed seed destroyer, corn gluten meal• manually pull or spot spray weeds as needed• apply compost tea if available• apply beneficial nematodes
April to May	<ul style="list-style-type: none">• apply calcium rich fertilizers such as alfalfa meal• apply soil amendments as per soil test• de-thatch and aerate if needed or wait until Sept/Oct• top dress with compost or compost blends• over seed with appropriate grass seed• if using corn gluten meal re-seed with grass seed in the fall• irrigate when necessary
June	<ul style="list-style-type: none">• irrigate when necessary, two to three times per week• irrigate with long watering of 30 to 40 minutes in early morning• monitor weeds and stay vigilant• mow lawn with higher blade, 3 to 4 inches high• apply compost tea if available
July	<ul style="list-style-type: none">• be vigilant with weeds• monitor insects and watering
August	<ul style="list-style-type: none">• pull or dig out weeds• monitor irrigation
Late August to October	<ul style="list-style-type: none">• de-thatch and aerate if switching to a fall program• over seed with appropriate grass seed type• top dress with compost or compost blend• add calcium rich fertilizer• start limiting water and lower mower blade• apply beneficial nematodes if needed
October to November	<ul style="list-style-type: none">• begin fall clean up with lawn and garden• mow the lawn low but do not scalp• add leaves and debris to compost• apply compost tea if available

12 Steps to Rejuvenating an Existing Lawn for Fall or Spring

1. Consider what your ultimate goal is for lawns appearance
2. Obtain a test of existing soil with a self test kit or professional lab evaluation
3. Mow the lawn short to 1 to 2 inches in height
4. Remove as many weeds as you can
5. Aggressively rake or de-thatch the lawn
6. Aerate soil with a core aerator that pulls out 4 to 5 inch plugs
7. Add soil amendment such as compost blends, dolomite lime, according to soil test or professional landscaper's advice. Re-grade low areas of lawn
8. Decide whether to use sod, seed or plugs (ground covering plants)
9. Re-seed with grass seeds that are suited to existing lawn, soil, light, climate and water restrictions if any
10. Apply seed according to instructions on package. If using sod butt up edges to existing areas of lawn
11. Water every day until new plantings germinate
12. Ease into a regular maintenance program of fertilizer and mowing



Pesticide Free: Fall

Tips for September, October & November

Cover crops

Fall is the perfect time for amending, refurbishing or establishing a lawn and cover crops are terrific way to do this. Some examples of cover crops are Annual Ryegrass, Tall Fescue, Fall Rye, Seed Oats, Seed Barley, Vetch, Winter Peas, Buckwheat Seed, and Clover.

Plant cover crops from September to early October and seed on the heavy side. They grow in most situations such as gravelly, sandy, clay soils. To encourage healthier cover crops incorporate natural soil amendments such as green sand, alfalfa and compost for nutrients and moisture retention. Till or dig in cover crops in early spring as soon as soil is workable from winter season.

For more information
kelowna.ca/environment
pesticidefree@kelowna.ca
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Preparing your lawn for fall:

1. Consider what your ultimate goal is for lawns appearance for the rest of the year and for the following spring.
2. Perform a soil test using a soil test kit.
3. Mow the lawn short one to two inches in height - longer blades of grass attract small rodents.
4. Remove as many weeds as you can.
5. Aggressively rake or de-thatch the lawn.
6. Aerate soil with a core aerator that has sharp tines that remove 4 to 5 inch plugs of soil.
7. Depending on the results of your soil test, add soil amendments such as compost blends, dolomite lime.
8. Re-grade low areas of lawn.
9. Decide whether to use sod, seed or plugs (ground covering plants).
10. Re-seed with grass seeds that are suited to existing lawn, climate and water restrictions if any.
11. Apply seed according to instructions on package. Best to use hand held or push drop or broadcast spreader. If incorporating new sod use turf starter fertilizers or natural amendments to encourage a healthy start.
12. Water every day until new planting or seed has germinated.
13. Ease into a regular maintenance program of fertilizer and mowing.
14. Irrigate infrequently for 20 to 30 minutes for established lawns.
15. Consider natural amendments for lawn and gardens such as alfalfa, manure, or compost blends.
16. Apply compost tea one more time in fall to help winterize and strengthen lawn.
17. Rake up dead leaves or bag them and incorporate into compost. Leaving a thick layer of dead leaves can cause winter kill when packed under snow and ice.
18. If you have an underground irrigation system, hire an irrigation company to blow out irrigation and sprinkler systems. October is a good time to do this.
19. Clean up flower gardens deposit end of the season debris into compost.
20. Make sure composts are properly layered, dampened and churned to produce high quality compost for the following spring season.
21. Lawn clippings can be put into compost as long as there is no chemical residue.
22. Clean and disinfect all equipment such as pruners, mowers, weed wackers, and all hand tools to rid of unwanted pathogens.
23. Check equipment for any broken or damaged parts and have replaced.

13 Lawn Alternatives

Flower Garden

“Low-Mow” Grasses

Masses of Ground Cover Plants

Mulched Beds and Pathways

Ornamental Grasses

Patios, Concrete, Decks

Rain Gardens, Ponds

Shrubs

Synthetic Turf

Trees

Vegetable Gardens

Wild Flower Meadows

Xeriscape

Common Lawn Weeds

Weed	Annual	Perennial	Common Eradication Methods
Blackmedic Looks like clover creeping with small yellow flowers. Reproduces by seed	Yes		leave it/nitrogen fixing; pull it manually; spot treatment with vinegar water; liquid iron; add nitrogen or compost
Crabgrass Green to bluish red in summer. 3 to 4 seed stems	Yes		pull out before seeds drop in the fall; aeration; vinegar water
Dandelion Separated lions tooth leaves. Deep tap root. Yellow flower. First nectar of spring for bees. Reproduces by seed		Yes	manually remove plant and all of the root; use vinegar water; chelated liquid iron; flower is source of nectar for bees
Mallow Low growing mat forming. Looks like small leaf geranium. Small white to pale lilac flowers. Reproduces by seed	Biennial		remove by hand; mow before seeds set; vinegar water solution
Plantain Oval shaped green leaves. Grows close to ground. Tall seed stalks in center of plant. Reproduces by seed		Yes	manually dig out; aeration; vinegar water; liquid iron
Prostrate Knotweed Wiry stems with small blue/green leaves. Reproduces by seed	Yes		manually pull out; mow before seed sets; aerate; vinegar water solution
Purslane Mat forming brownish red stems with shiny leaves. Looks like a succulent. Also called wild portulaca. Reproduces by seed		Yes	edible, nutty flavour; manually take out; increase irrigation; vinegar water
White Clover Low growing, creeping and mat forming. Groups of 3 dark green leaves. White and pink tinged flowers. Reproduces by seeds and rhizomes		Yes	fixes nitrogen; let it grow aerate; re-seed choke out; vinegar water; chelated iron; early nectar source for bees
Wood Sorrel Small bushy clover looking plant. Leaf is green to brown colour. Little yellow flowers that have 5 petals on them. Reproduces by seed		Yes	edible; leave it; add nitrogen and calcium; vinegar water; remove manually

See photo examples of these weeds at <http://gardeningguru.webs.com>.

Nitrogen nodules and Nitrogen fixing plants

Nitrogen for plants is extremely important to the health and life of plants in a garden. Without a certain amount of nitrogen, plants will fail and not grow properly. Nitrogen is everywhere in the world but most of the nitrogen in the world is a gas and most plants cannot use nitrogen as a gas. Most plants must rely on the addition of nitrogen to the soil in order to be able to use it. There are a few plants however that do love nitrogen gas and are able to draw the gas from the air and store it in their roots. These plants are called Nitrogen Fixing.

Nitrogen fixing plants draw nitrogen to the roots by way of a common bacteria called 'Rhizobium'. This type of bacteria infects legume plants such as peas and beans and uses the plant to help it draw nitrogen from the air. The bacteria converts this nitrogen gas and then stores it in the roots of the plant.

When the plant stores the nitrogen in the roots, it produces a lump or node on the root called a 'nitrogen nodule'. This is harmless to the plants but very beneficial to your garden.

When legumes such as alfalfa, clover, black eyed peas, pinto beans and other nitrogen fixing plants and the bacteria work together to store the nitrogen, they create a green environment or symbiotic relationship in your garden. While the nodules are growing they release very little nitrogen into the soil but when they are done growing and the plants die, their decomposition releases the stored nitrogen and increases the total nitrogen into the soil. The release of nitrogen from nodules makes it available for nutrient uptake for more plant growth.

Nitrogen for plants is essential to your garden but can be difficult to add without chemical assistance, not always desirable for organic and permaculture growers. This is when nitrogen fixing plants are useful. Try planting a winter crop of legumes such as clover or winter peas, black eyed peas in spring and summer. Simply till under the plants in fall as soon as plants have died back. As these plants decompose, they will raise total nitrogen in soil and will make available the nitrogen for plants that are unable to get nitrogen from the air.

Your garden will grow greener and more lush thanks to plants that fix nitrogen and their beneficial relationship with bacteria.

pH soil factor plant information

Soil Acidity and Alkalinity are expressed in a unit scale from .0 to 14.0. Acidity is associated with an increase in hydrogen ions with an increase in hydroxyl ions. A pH of 6.0 is 10 times more acidic than a pH of 7.0. The differences affect the way molecules act in the soil. Plants grow best in soil with pH between 6.0 and 7.0. Too much or too little acidity prevents plants from utilizing the nutrients in soil. Major nutrients in soil are Nitrogen, Phosphorus, Potassium, Calcium and Sulfur. Minor nutrients are for example are Magnesium, Manganese, Copper, Boron and Iron.

Knowing the pH of your soil can help you choose the right mix of plants to grow and the right amendment treatment for your soil.

Soil life is the living organisms that live in soil and break organic materials down in simpler forms such as microscopic protozoa, beneficial fungi and beneficial microbes. Soil bacteria is responsible for the decomposing of organic material into simpler nutrient forms the become food plants. Soil bacteria best grows in 6.3 - 6.8 pH. Fungi, mold and anaerobic bacteria prefer a more acidic environment, making acidic soil more prone to souring and pathogen problems.

pH of the soil determines what nutrients will be absorbed by the plant. When soil is acidic minerals such as zinc, aluminum, manganese, copper and cobalt become soluble and readily available for plant uptake.

Unfortunately these minerals can also be too excessive and very toxic to plants. To Make soil more acidic use peat moss, Iron Sulphate, Manganese Sulphate, Aluminum Sulphate, Sulfur pelletized or flour.

To Make soil more alkaline use dolomite lime, powder or granular; Calcium Chloride, liquid or granular; agriculture lime or manure.



Pesticide Free: Spring Tips for March, April and May

Spring is here!

- Towards the end of March to beginning of April, or when snow has melted, look for signs of lawn and insect disease.
- In March and April, start by raking up leaves and any other debris on the lawn.
- Consider ultimate goal for lawn and garden appearance and then work on a plan for refurbishment and design.

For more information
kelowna.ca/environment
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pH balance tests for lawn and garden

It is always a good idea to test your lawn and garden soils' pH balance. Soil pH balance, whether acidic or alkaline, is very important to know when considering the best feeding programs for grass and plants. A proper balance in soil helps blades of grass and plants utilize the most in nutrient feeding.

Lawn soil pH balance should be between 6.0 and 7.0/7.5. Vegetable and flower gardens soil can range in pH depending on type and variety of plants in the soil. All pH test kits will have a colourful indication chart to follow to help determine your next course of action. pH soil test kits for homeowners come in a meter probe style or reusable plastic kit.

If soil is too acidic (pH less than 6) use calcium/magnesium enriching soil amendments, such as dolomite lime (slow release), dolopril (fast release) and calcium enriched alfalfa pellets to raise soil pH

If soil is too alkaline (pH greater than 7.5) in lawn or garden use sulfur to lower pH to a more neutral state. Examples include sulfur pellets and sulfur flour.

Compost for conditioning

Compost, animal manures and natural soil amendments help condition and promote a healthier soil while encouraging and stabilizing pH balance. Apply the soil amendments or compost after lawn has been raked and aerated. Amendments such as alfalfa naturally fertilize and amend soils with nitrogen, phosphorus, potassium and calcium rich components that help stabilize pH balance. Other natural soil amendments to apply in spring and fall are soybean meal, seaweed/kelp meal, and fish liquid emulsion.

Compost Tea fertilizer

Compost Teas fertilizers encourage healthy soils promoting natural protozoa, beneficial microbes, beneficial nematodes while promoting disease and insect resistance.

Use Compost Tea as an option for fertilizing and establishing a healthy lawn. Compost tea is made from animal or plant base and is great for reducing thatch build up in turf, promoting disease resistance lawns, and establishing a healthier turf for years to come. Compost tea should be applied three to four times from spring to fall. Bacterial compost tea is best for lawn and garden. Fungal compost teas are excellent for trees and shrubs.

Raking and de-thatching lawn

Rake or de-thatch lawn using bamboo, steel, or plastic rakes. De-thatch with a mechanical machine that uses tines for removing deep, stubborn layers of grass blades and debris. Removing thatch build up encourages water and fertilizers to leach into soil down to root systems, creates fewer fungal and bacterial problems and discourages insects from thriving on turf blades and root systems

Synthetic granular or liquid fertilizers

All fertilizers have a certain percentage of nitrogen, phosphorus and potassium. Most fertilizer varieties will have added trace minerals such as copper, iron, magnesium, zinc, and sulfur. These elements are crucial to proper blade, stem and root growth. Nitrogen is for the greening of the blade, phosphorus is for encouraging root system, and potassium is for the overall structure and disease resistance of the whole plant. For flowers, the phosphorus helps with colour of flowers and potassium is for blooming and vigour of the plant. Phosphorus is an important element for root vegetables such as potatoes.



water soluble synthetic fertilizers can be applied every 14 to 21 days from spring to fall.

When planting new sod, or broadcasting a new seed area, apply a starter fertilizer with numbers on label such as 10-30-10. The middle number is what encourages root system to grow in soil. Broadcast fertilizer first before sowing seed or laying down new sod. Sod or seed is best started in spring or fall when temperatures of air and soil are cooler and watering should be done on a daily basis. Usually a newly seeded area takes 7 to 15 days to germinate and in extreme heat temperatures should be watered a couple times a day. New sod should be watered also on a daily basis until established.

Fertilizers cont'd

Manmade fertilizers have synthetic nitrogen in a slow release or fast release form. Slow release nitrogen will have a coating to allow for six to eight week fertilizing. Use slow release fertilizers with numbers such as 24-4-10 or 18-6-12 or of similar sequence. This number represents the Nitrogen, Phosphorus Potassium (NPK) ration. All three elements of NPK are important in the function and growth of healthy turf. A slow release fertilizer slows down the process of growth creating less stress throughout the heat and drought of the summer months.

Two forms of synthetic fertilizers to apply are granular or water soluble. Granular products can be applied with a drop or broadcast spreader and are calibrated by instructions on back of packages. Water soluble fast releasing fertilizers are mixed with water and applied by hose end, pump sprayers, irrigation systems or watering can. Be careful when applying synthetic fertilizers to not use more than is recommended on the label. Burning and salt build up are examples of too much fertilizer applied and can be harmful to turf blades.

Normally synthetic granular fertilizers come in spring, summer, fall and/or winter applications. Do not apply granular synthetic fertilizer more than three to four times from spring to fall. Liquid or

organic pesticide product. Also, corn gluten meal does not know the difference between a weed seed and a grass seed therefore overseeding with grass seed would be best done in the fall if using this product as an option for controlling weed seed germination in soil.

For application amount apply 9 kilograms per 1,000 square feet.

Corn gluten meal, as a fertilizer

As a natural/organic nitrogen fertilizer, corn gluten meal is ideal for fertilizing the lawn. The nitrogen percentage makes corn gluten meal ideal for greening of turf blades. Look for handy liquid corn gluten meal in a container that attaches to a hose as another option for weed seed controlling. Most containers will fertilize approximately 2,000 square feet of existing lawn. Do not irrigate for at least 12 hours after applying corn gluten meal.

Beneficial Nematodes

Beneficial Nematodes a biological control are nature's way of destroying insect pests in and on the soil. They are a microscopic worm and are harmless to pets, people, and even earth worms. Beneficial Nematodes seek out and kill soil-inhabiting insects above ground and many stages of insect larvae and grub in the ground.

Middle to end of April is a great time to incorporate beneficial nematodes. Day-time air temperature should be over 8 degrees Celsius consistently.

In the Okanagan there are two varieties of beneficial nematodes that control the best, Heterorhabditis Bacteriophora and Steinernema Carpocapse Nematode.

Heterorhabditis Bacteriophora Nematode is most effective against beetles, grubs and weevils and many other deep soil insects. Steinernema Carpocapse Nematode waits near the surface of the soil and attacks moving pests. This nematode is most effective against flea larvae, caterpillars in the lawn, garden and soil where larvae pupates. Other target pests include codling moth, cutworm, armyworm, leafminer, ants, sod webworm, flies, loopers, wire worm, fruitfly and many others.

Irrigation

For established lawn refurbishment or rejuvenation including aeration, soil amendments and seed application water infrequently 2 to 3 times a week for 20 to 30 minute intervals. Automatic drip watering systems on timers are best to use for turf areas. Soaker hoses and drip irrigation is best for watering flowers, vegetables, shrubs and xeriscaped gardens.

Corn gluten meal to control weeds

Corn gluten meal can be used as a pre-emergent weed seed destroyer. It is excellent for controlling crabgrass, quack grass, dandelion, black medic, clover, and all lawn weed seed. This product works by destroying the soil surface and so weed seeds cannot germinate on the existing area. Corn gluten meal is a product that needs to build up in soil for total weed seed controlling.

Apply corn gluten meal in mid to late April here in the Okanagan. Apply it again six to eight weeks later so it builds up in the soil. You can broadcast granular corn gluten meal up to three times in the season. This product builds up in soil and in two years you will notice a difference in weed seed germination.

Note: corn gluten meal does not destroy existing weeds therefore you must manually pull out these weeds or use an or-

Pesticide Free: Summer

Tips for June, July & August

Save water this summer

Cool season grasses naturally go dormant in summer heat so there is the option to not water at all. The grass will come back once the summer night and day temperatures cool down and watering cycle is applied. If you do choose to water, the best time to water is early morning or early evening before and after the heat of the day.

Weed control

Encouraging a weed free lawn helps ensure that the blades of grass are not stressed when fighting to stay healthy. Selective weeds are beneficial for lawn and gardens. Clover and black medic add 'fixed nitrogen' to the soil naturally fertilizing while encouraging a thicker lawn.

Start weed control as early as possible in season when weeds are small and easier to eliminate. Keep up with weed control by using manual tools and diggers, corn gluten meal, or organic/natural pesticides.

Below is a chart with options of natural/organic pesticides to use for all situations.

Problem	Solution
Weeds in lawn or garden	Chelated liquid iron Herbicidal fatty acids and soaps Acetic acid horticultural vinegar
Weed seeds	Corn gluten meal
Weeds/grasses in sidewalks, patio stones, gravel areas	Acetic acid - horticultural vinegar Herbicidal soap
Moss/algae in lawn or garden	Chelated liquid iron Fatty acid soaps
Grubs/larvae/insects in lawn or garden	Beneficial nematodes Milky spore Fatty acid soaps
Aphids, leafhoppers, mites, whitefly, thrips, scale, wasps, yellow jackets	Insecticidal soap, fatty acids, sticky traps, sticky pheromone lure traps, pyrethrin, sulfur, beneficial insects, diatomaceous earth, dormant oil, canola and corn oils
Black spot, powdery mildew, botrytis blight, leaf spot, gray mould	Wettable sulfur, copper bordo, lime sulphur, Serenade BS (<i>Bacillus Subtillis</i>)
Ants, earwigs, snails, slugs, cockroaches	Borax, boric acid solutions, diatomaceous earth, stout beer, rolled up newspaper, cardboard rolls, lure traps and baits
Mosquitos, gnats, flies	Garlic, dormant oil, pyrethrin, canola and corn oils, fly ribbon, pheromone lures, yellow sticky traps, bacillus israelensis, electronic zappers
Army tent worm, fall webworm caterpillars, spruce budworm, loopers	BTK, fatty acid soaps, pyrethrin
Rodents	Environmental live traps, ultrasonics, blood meal, bitter agents, corn meal

For more information
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Common lawn weeds

Use this chart to help identify weeds, rectify soil conditions to lessen weed populations and incorporate best control methods.

<p>Blackmedic Description: Creeping green clover-like plant with small yellow flowers. Reproduces by seed. Can stay dormant in soil for years.</p>	<p>Control methods: leave it, pull it manually, spot treatment with acetic acid water solutions, chelated liquid iron, corn gluten meal.</p> <p>Amend soil with: compost and/or nitrogen soil amendments.</p>
<p>Crabgrass Description: Green to purplish in summer. Crabgrass has a two to four prong seed pod. Reproduces by seed.</p>	<p>Control methods: pull out manually in mid to late summer before seed drops, aeration of ground, vinegar water solutions, corn gluten meal.</p> <p>Amend soil with: calcium, compost, compost tea.</p>
<p>Quackgrass Description: Clump forming with blue/green blades. Grows two to three feet tall. Often confused with crabgrass but has thicker stems. Reproduces by rhizome and seed.</p>	<p>Control methods: pull out manually, frequently mow back new shoots in spring, aerate ground.</p> <p>Amend soil with: compost tea, compost, calcium rich amendments.</p>
<p>Dandelion Description: separated lions green tooth leaves. Deep tap root. Yellow flower. Reproduces by seed. First nectar of spring for bees.</p>	<p>Control methods: remove all plant with root system by hand or use manual tools, apply acetic acid water solutions, chelated liquid iron, herbicidal soaps, corn gluten meal.</p> <p>Amend soil with: calcium rich amendments, lime.</p>
<p>Common mallow upright, creeping mallow Description: Low growing mat forming or upright. Small green leaves with small white to lilac flowers. Reproduces by seed.</p>	<p>Control methods: remove all plant and root system by hand or use manual tools, apply acetic acid water solutions or herbicidal soaps.</p> <p>Amend soil with: nitrogen, compost, compost tea, phosphorus rich amendments.</p>
<p>Plantain broadleaf and narrowleaf Description: Oval shaped or elongated shaped green leaves. Foliage grows in clumps close to ground. Tall seed stalks in centre of plant. Reproduces by seed.</p>	<p>Control methods: manually dig out by hand or tool, acetic acid solution, chelated liquid iron, or herbicidal soaps.</p> <p>Amend soil with: lime, compost, compost tea, sulfur.</p>
<p>Purslane Description: mat forming brownish red stems with shiny leaves. Also called wild portulaca. Has a nutty flavour and can be eaten. Reproduces by seed.</p>	<p>Control methods: manually take out by hand or tool. Increase irrigation. Use acetic acid water solutions, corn gluten meal.</p> <p>Amend soil with: calcium, nitrogen, compost, phosphorus rich amendments.</p>
<p>Wood sorrel Description: Small bushy clover looking plant resembling clover. Leaf is green to brown colour. Has little yellow five petalled flowers. Reproduces by seed. Edible to eat.</p>	<p>Control methods: leave it, acetic acid water solutions, remove manually or dig by tool. Herbicidal soaps, acetic acid solutions, corn gluten meal.</p> <p>Amend soil with: nitrogen, calcium, compost, compost tea, phosphorus rich amendments.</p>
<p>White clover Description: Nitrogen fixing, low growing with creeping mat formation. Groups of three dark green leaves with whitish veining. White and pink tinged flowers. Reproduces by seed and rhizome. Early spring nectar for bees.</p>	<p>Control methods: let it grow, aerate, re-seed or overseed with lawn grass seed to choke out, acetic acid water solutions, corn gluten meal.</p> <p>Amend soil with: added nitrogen, lime, compost.</p>

Reducing Use of Synthetic Pesticides Naturally

The City of Kelowna's pesticide by-law restricts the use of synthetic chemical pesticides, but allows you to use certain lower-risk pest control products. Look for products with only these ingredients to help control weeds and insects. **Always read the product label** and carefully follow instructions. Use plants for design that are disease and pest resistant. Encourage a healthy soil using organic amendments.

Problem	Solution
weeds in lawn or garden	chelated iron (weed b-gone) herbicidal fatty acid soaps
weed seeds	corn gluten meal
weeds/grasses in sidewalks patio stones, driveways	acetic acid horticulture vinegar
moss in lawn or garden	chelated liquid iron fatty acid soaps
grubs/larvae/insect in lawn garden & soil	beneficial nematodes milky spores fatty acid soaps
aphids, leafhoppers mites whitefly, thrips, scale	insecticidal soap fatty acids sticky traps, Pyrethrin sulfur, beneficial predators diatomaceous earth dormant canola & corn oils
black spot, powdery mildew, botrytis blight leaf spot & gray mould	sulfur copper bordo lime sulphur serenade
ants, earwigs, snails Slugs, cockroaches	borax, boric acid diatomaceous earth, stout beer
mosquitos, gnats, flies	garlic, dormant, Pyrethrin canola & corn oils, fly ribbons pheramone/yellow sticky traps bacillus israelensis
rodents	environmental traps ultrasonics, blood meal bitter agents, corn meal



Pesticide Free: Winter

Tips for December, January & February

Fifteen garden and lawn alternatives

- Dutch white clover and elfin clover varieties
- Planter boxes
- “Low-Mow” grasses
- Ornamental grasses
- Wild Flower Meadows
- Flower gardens
- Vegetable gardens
- Masses of ground covering plants
- Shrubs
- Trees
- Mulched beds and pathways
- Patios, Concrete, Decks
- Rain Garden, Ponds
- Xeriscaping
- Synthetic turf

For more information
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Plan for next season

Winter is also best for planning a new lawn. Use the chart below to help you choose whether you should use grass seed or sod, there are pros and cons for both. Sod or seed should be a combination of bluegrass, fescue or ryegrass. There are many varieties produced for the Okanagan that take into consideration the extreme temperatures in summer and winter. You can gather further information from local sod and seed nurseries to make important decisions. Sod is great for quick greening, erosion/dust control and suppressing weeds/weed seed. Seed is less expensive to buy, easier to apply and has more varieties to choose from. Seed can be applied by small hand held broadcaster or wheeled drop or broad cast spreader.

January is the time to start planting certain vegetable seeds indoors. Some vegetable crops, such as tomato, pumpkin and squash, have long growing seasons and benefit from an earlier start indoors. Jump start the new season by planting seeds in starter mix, plastic grow pots and trays. Use grow lights to simulate sunlight and warmth or place trays next to sunny window sills. Seedlings will be ready to transplant outside after spring’s last frost in the new year.

6 tips for ‘winterizing’ your lawn:

1. Stay off lawns as much as possible.
2. Do not park or keep heavy equipment on lawn since this damages lawn blades.
3. Reduce snow mounds on turf and shrubs and avoid sodium based damaging ice-melting products that leave destructive residues behind.
4. Instead, use environmental brands of ice-melting products or sand for traction.
5. Winter is a great time to think about re-designing gardens or lawns. Plan your design and think about how you would like your yard

to look in the future.

6. If you have recently moved, read any documentation on the past history of the lawn and plants. Think about what amendments might be necessary.

Winter – a time for change

Winter is an ideal time for designing or refurbishing areas of your yard to make them more environmentally friendly and easier to maintain. Below are examples of lawn and garden alternatives to incorporate into landscaping for drought resistance, less water usage, and lower maintenance.

Seed versus sod - what suits you best

Senario	Seed	Sod
Initial Cost	Low	High
Establishment/ Germinating time	Long	Short
Prep work	Same	Same
Labour/installing	Low	High
Grass varieties	Many	Few
Best time to plant	Fall	Any time
Failure risk	High	Low
Weed stress	High	Low
Erosion stress	High	Low

4 steps to prepare for a healthy lawn

1. Prepping soil for seed or sod is the most important step for establishing a healthy lawn. Apply 3 to 6 inches of screened (devoid of weed seeds) top soil.
2. Use a landscape rake in a variety of different widths to distribute top soil evenly.
3. Using a manual roller, grade soil to a smooth, flat consistency.
4. Lastly, apply seed or sod and push roller over areas for better contact with soil.