

## FOR IMMEDIATE RELEASE

### **Compost Council of Canada Launches Initiative to Fight Climate Change through Organics Recycling and Soil Health Improvement**

*New initiative targets municipalities/communities and IC&I sector to reduce methane emissions, promote sustainable waste management and improve the health of our soils*

May 11, 2023: The Compost Council of Canada (CCC) has announced the launch of the "Advancing Organics Recycling Throughout Canada" initiative, a program designed to support the adoption of organics recycling programs in Canadian municipalities and the industrial, commercial, and institutional (IC&I) sector. The CCC invites motivated organizations and individuals to access our Council's expertise and availability to learn the how-to's of organics recycling specific to their situation. Additionally, the CCC initiative includes education and awareness about the essential role that soil and compost play in mitigating climate change.

"The reality is that all Canadians still have the opportunity to fight climate change instead of accepting it as a given," said Susan Antler, Executive Director, Compost Council of Canada. "Our soils and compost bins are important allies in this battle. Through organics recycling and the return of organic matter back to our soils, we not only reduce greenhouse gas emissions but also create additional benefits such as improved soil health and biodiversity, increased agricultural productivity, enhanced food security and water quality."

The CCC will be providing resources, training, and technical support to municipalities and IC&I organizations interested in implementing organics recycling programs. The goal is to facilitate widespread adoption of these programs, leading to significant reductions in waste sent to landfills and greenhouse gas emissions. This project was undertaken with the financial support of the Government of Canada through the federal Department of Environment and Climate Change.

"This initiative is a call-to-action for municipalities and the IC&I sector to join us in promoting organics recycling," said Larry Conrad, Chair, National Board of Directors, Compost Council of Canada. "By working together, we can build a sustainable future for Canada and showcase our nation as a leader in environmental stewardship."

The Compost Council of Canada is inviting interested parties to express their interest in participating in the "Advancing Organics Recycling Throughout Canada" initiative. For more information, please contact the Council directly by emailing: [info@compost.org](mailto:info@compost.org).

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#### **About the Compost Council of Canada:**

The Compost Council of Canada is a national non-profit organization dedicated to promoting responsible management and recycling of unavoidable organic residuals. Established in 1991, the CCC has over 30 years of experience and expertise in organics recycling, working with municipalities, the IC&I sector, academic institutions, and community organizations to develop and implement sustainable organics recycling programs across the country.



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## **The Importance of Organics Recycling in Combatting Climate Change**

As the effects of climate change become increasingly evident, it is crucial that societies around the world adopt sustainable practices to put the brakes on climate change as well as mitigate its impacts. One such practice is organics recycling, a process that transforms organic residual materials into valuable compost. By diverting organic residuals from landfills and promoting the use of compost, organics recycling plays a vital role in reducing greenhouse gas emissions and enhancing the health of our environment.

### **Greenhouse Gas Emissions and Landfills**

A significant portion of the global greenhouse gas emissions comes from the decomposition of organic waste in landfills. According to Environment and Climate Change Canada, municipal solid waste landfills are responsible for about 23% of Canada's methane emissions, a potent greenhouse gas with 86 times more global warming potential than carbon dioxide over a 20-year period. By diverting organic waste from landfills through organics recycling programs, the production of methane can be significantly reduced, thus mitigating its contribution to climate change.

### **Carbon Sequestration, Soil Health and Food Security**

Organics recycling has a positive impact on soil health and carbon sequestration. The compost produced through the recycling process is rich in organic matter and nutrients, which can improve soil structure, fertility, and water-holding capacity. When compost is applied to soil, it can increase the soil's capacity to store carbon, effectively removing carbon dioxide from the atmosphere and reducing its impact on climate change. Additionally, healthy soils with a high organic matter content are more resilient to erosion,

drought, and flooding, all of which are exacerbated by climate change. A recent Manitoba study also shows that the addition of compost to food-growing soils produced higher yields with better nutritional values, energized through improved plant metabolism – the process by which plants live and grow.

### **Additional Benefits of Organics Recycling**

Organics recycling not only helps combat climate change but also generates additional environmental and economic benefits. By diverting organic waste from landfills, the need for new landfill space is reduced, preserving natural habitats and ecosystems.

From an economic standpoint, organics recycling creates jobs in the collection and processing of organics residuals as well as creates new markets within the energy and soil management sector. Additionally, compost improves crop yields and water quality, optimizing inputs and the potential for greater productivity and reduced costs.

### **Conclusion**

Organics recycling is a powerful tool in the fight against climate change. By diverting organic residuals from landfills, reducing greenhouse gas emissions, promoting carbon sequestration, and improving soil health, organics recycling plays a crucial role in building a more sustainable future. The Compost Council of Canada's "Advancing Organics Recycling Throughout Canada" initiative aims to harness the potential of organics recycling by supporting the adoption of such programs across the country, benefiting the environment, the economy and local food production.

**A universal call to action:** "Your thoughtful act of recycling organics does so much. Recycling organics means less greenhouse gas in the atmosphere. And using compost feeds the soil. Our soils then return this kindness with healthier food, cleaner water, richer biodiversity and a calmer climate. Thank you for doing your best."

## Organics Recycling Processes and Techniques

The recycling of organic residuals is an essential practice for sustainable waste management, transforming organic “waste” into a valuable resource for soil enrichment and, at times, renewable energy. This backgrounder explores the different approaches to composting, as well as anaerobic digestion, explaining key factors and techniques involved in each process.

### Composting Techniques

1. *On-site Composting*: On-site composting is generally carried out at the location where the organic residuals are generated. This method reduces the need for transportation, providing both environmental and oftentimes economic benefits for the host site.
2. *Vermicomposting*: Worms, generally “red wigglers”, are employed to consume specific organic residuals, creating castings for soil use. Vermicomposting can be done at home or on a large scale, depending on the amount of organic residuals and the space available.
3. *Aerated (Turned) Windrow Composting*: This method is suited for large volumes of waste generated by entire communities or high-volume businesses. Organic residuals are prepared according to a defined recipe and then formed into long piles called “windrows”. Ongoing aeration and moisture control monitoring are required prior to full compost maturation and market readiness.
4. *Aerated Static Pile Composting*: Organic waste is mixed and then formed in a large pile, with bulking agents such as wood chips being added for aeration. Piles are often placed over a network of pipes for airflow.
5. *In-Vessel Composting*: Suitable for virtually any type of organic residuals, in-vessel composting involves feeding materials into a drum, silo, concrete-lined trench, or similar equipment. This allows for enhanced control of environmental conditions, with the material being mechanically turned or mixed to ensure aeration and moisture control.
6. *Backyard Composting*: Home composting is an easy and resourceful way to recycle food scraps and yard trimmings at home to produce a high-quality soil amendment. The scientific processes involved in large-scale composting remain the same: namely, proper ingredients and recipe, aeration, moisture control and time.

## Anaerobic Digestion

Anaerobic digestion is a process where bacteria break down organic matter, such as animal manure, wastewater biosolids, and food waste, in the absence of oxygen. It occurs in a sealed vessel called a reactor and produces two valuable outputs: biogas and digestate. Anaerobic digestion can process multiple organic materials through co-digestion, increasing biogas production from low-yielding or difficult-to-digest organic residuals.

### Key Factors in Processing Organic Residuals

Included among the main factors that must be controlled during composting and anaerobic digestion are:

1. *Feedstock and Nutrient Balance*: A proper balance of organic residual inputs is essential. For example, "green" organic materials (high in nitrogen) and "brown" organic materials (high in carbon) are fundamental for successful composting. Equally so, organics recycling can be compromised by contamination, which occurs when non-compostable materials are mixed with organic waste. Contamination can reduce the quality and marketability of compost and digestate, damage the equipment and facilities within organics recycling operations, and increase the costs and environmental impacts of organics recycling.
2. *Particle Size*: Smaller particles increase the surface area for microorganisms to feed on and produce a more homogeneous mixture. However, if particles are too small, they can restrict airflow.
3. *Moisture Content*: Moisture is an essential factor for both composting and anaerobic digestion, as it affects the activity and diversity of microorganisms that decompose organic matter.
4. *Oxygen Flow*: Aerating the compost pile promotes faster decomposition. Techniques for aeration include turning the pile, placing it on a series of pipes, or adding bulking agents like wood chips and shredded cardboard. Conversely, anaerobic digestion utilizes microbes which function in the absence of oxygen.
5. *Temperature*: Maintaining an optimal temperature range is crucial for both composting and anaerobic digestion to enable the appropriate suite of microbes to function effectively. This range varies between the two approaches.

### In Summary

Composting and anaerobic digestion are essential components of sustainable waste management, helping to reduce the volume of organic waste in landfills and create valuable resources for soil improvement and renewable energy. By understanding the different types of composting processes and techniques, individuals, businesses, and communities can choose the most appropriate method for their needs and contribute to a more sustainable and environmentally friendly waste management system.

This strategy empowers individuals and communities to take control of their waste management and reduce their environmental impact. By actively participating in composting and anaerobic digestion programs, we can work together to minimize waste, improve soil health, and combat climate change.

With the various techniques available, there is a suitable option for everyone, regardless of location, available space, or waste volume.

The CCC initiative, *Advancing Organics Recycling Throughout Canada*, aims to work with motivated organizations to help assess the appropriate organics recycling option specific to their situation. For more information, please contact The Compost Council of Canada: [info@compost.org](mailto:info@compost.org).



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### ***The Compost Council of Canada: A Trusted Leader in Advancing Organics Recycling***

The Compost Council of Canada (CCC) is a national non-profit organization dedicated to promoting the responsible management and recycling of organic residuals. Since its establishment in 1991, the CCC has been a driving force in supporting the development and implementation of organics recycling programs across the country, with a focus on improving soil health, reducing methane emissions, and conserving natural resources.

#### **Key Achievements and Initiatives**

*Comprehensive Programs and Training:* The CCC has developed various programs to serve the training, information, and advocacy needs of communities and organizations involved in organics recycling. Some of these programs include: Compost Facility Operator Training & Certification, Compost Quality Alliance (CQA), Digestate Quality Alliance (DQA), and national and regional conferences, workshops, and webinars.

*Soil Health Education and Outreach:* Recognizing the critical importance of healthy soils in supporting sustainable agriculture and ecosystems, the CCC has created initiatives such as: The Biology of the Soil, Soil Safari, and Plant-Grow-Share a Row to educate the public on the benefits of compost use and organics recycling. Most recently, the CCC partnered with the Soil Conservation Council of Canada, with support from the Metcalf Foundation, to research and develop the pivotal document: *Recruiting Soil to Tackle Climate Change: A Roadmap for Canada*.

*Standards and Quality Assurance:* The CCC has been instrumental in establishing standards for compost and digestate quality, as well as compostability. This ensures that the end products of organics recycling are safe and beneficial for the environment and the communities that use them.

*Extensive Network, Partnerships & Access:* Over its 30+ year history, the CCC has built strong relationships with industry professionals, academic institutions, governments, and community organizations. This extensive network allows the CCC to effectively collaborate and share resources, knowledge, and best practices to advance organics recycling and soil health practices across Canada. Accessibility to this information has always been a fundamental priority for the CCC.

The Compost Council of Canada's experience, credibility, and comprehensive approach make it the ideal organization to lead the *Advancing Organics Recycling Throughout Canada* initiative. By leveraging its extensive network, knowledge, resources and accessibility, the CCC is well-positioned to help communities and the IC&I sector overcome barriers and successfully implement organics recycling programs that are tailored to their unique needs and circumstances.

For more information on the Compost Council of Canada and its various initiatives, please visit [www.compost.org](http://www.compost.org).



# *The* **5C'S** *for* **Healthy Soil**

Taking responsible care of your soil can be one of the most important ways to help calm our climate. These are the 5 C's that will help your soil tackle climate change, provide healthier food, cleaner water and richer biodiversity. And what's equally great, better soil health will help support a lush and beautiful landscape, year after year. For more info, visit [www.compost.org](http://www.compost.org).

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## **1. Careful Cultivation**

Soils are living ecosystems, teeming with beneficial organisms that support plant growth and health. These organisms are your underground workforce. Digging, tillage and other forms of soil upheaval destroy underground communities and reduce the benefits these organisms can provide.

## **2. Control Compaction**

While soils can easily handle the odd footstep or wheelbarrow rut, repeated walking on soil results in a hard surface that rejects water and plant roots alike. The downward pressure eventually collapses the sponge structure built by soil critters and makes your soil more like a concrete block.

## **3. Cover the Soil**

A bare soil is vulnerable soil; your microbial workforce needs to be protected - extreme temperatures and moisture levels harm and deplete their strength. Protect them by keeping soil covered, all year round.

## **4. Crop and Plant Diversity**

If you have a lot of different types of plants above ground, you will end up with a greater diversity of friendly soil critters, both above and below ground. Different plants tend to attract and nurture different types of soil critters – almost all of them good for your soil and your plants.

## **5. Compost and Other Soil Improvers**

Your soil's underground workforce consists of living creatures, with the same physical needs that we have – food, water, air, and a safe habitat. When we add materials to the soil, we should do so carefully and consciously. For example, compost feeds your soil critters, provides nutrients for your plants, builds organic matter in your soil, and generally helps nurture your soil's ecosystem. Consider the impact/benefits of other inputs in the same manner.

# The 1<sup>st</sup> C: Careful Cultivation

**Try to disturb the soil as little as possible.**

The invisible critters in your underground workforce spend a lot of energy building a *soil structure* that helps both them and you. A healthy soil has a structure like a *sponge* -- full of *pore spaces*, so that it easily absorbs and holds the water and air that plants (and the soil critters) need to thrive.

An unhealthy soil is a compacted soil, with few pore spaces, more like a brick than a sponge. It has a limited ability to hold air and water.

As gardeners, we used to think that turning the soil over every spring was the best way to manage weeds and prepare the soil for planting. We now know that this activity is bad for soil health. **Any disturbance, such as tilling or digging, breaks up the soil's structure and its many intricate networks.** This disruption will also lead to turning **your soil sponge into a soil brick.** What happens then?

- instead of seeping into the soil, rainfall will run off the soil's surface or just form puddles that evaporate in the sun
- the habitat for your underground workforce is severely disturbed, limiting their ability to function and contribute to a vital soil structure
- you will have to keep adding more and more water, fertilizer and pesticides, just to replace the benefits your workforce would have provided free of charge.

Of course, in most gardens, there will need to be some disturbance, such as digging a small hole to plant a seedling. But try to keep any such disturbance to a minimum.

Here are some tips for how to practice **no-dig gardening**.

- **Whatever you do, don't turn the soil over! Disturb the soil as little as possible when you weed, seed or plant.** In many cases, you can spread seed on the soil's surface then cover with compost or soil to the desired depth. With seedlings, just make a hole big enough for the roots, put the seedling in the hole, then backfill with compost and/or soil.
- **Don't pull your garden weeds**, just cut them off at soil level, then repeat as they grow back; they will eventually run out of energy and die, leaving their roots to enrich the soil.
- **Better yet, use mulches to prevent weed growth:** organic mulches (e.g., compost, straw, cardboard, wood chips) will break down gradually and feed the soil organisms; inorganic mulches (e.g., crushed rock) will not break down, but will still protect the soil (see the 3rd C).

## Careful Cultivation

... one of the 5 C's for Healthy Soil

# The 2<sup>nd</sup> C: Control Compaction

**Repeated walking or driving on soil destroys its sponge-like structure.**

While soils can easily handle the odd footstep or wheelbarrow rut, repeated walking or driving on soil results in the kind of thing you see with any well-worn forest or meadow pathway – a hard, concrete-like surface that rejects water and plant roots alike. The downward pressure from feet or wheels collapses the lovely sponge structure built by your underground critters and makes your soil more like a brick.

Here are some ideas on how to control compaction in your garden or your yard.

- **Add compost each year**, in the spring or fall. Compost feeds the critters that build aggregates in your soil. Aggregates are the building blocks of good soil structure, which is the opposite of compaction.
- As emphasized in the 1<sup>st</sup> C (Careful Cultivation), **disturb the soil as little as possible**. Digging, roto-tilling, turning the soil over – all gradually destroy the lovely sponge structure of your soil.
- **Keep the same pathways year after year** and either cover them with wood, bricks, or stone, or add compost and grass seed and turn your garden pathways into grassways.
- **Be careful when you add fertilizer**. More is not always better. Too much nitrogen, for instance, can attract weeds and reduce organic matter, which leads to compaction. Soil tests are helpful, but so is common sense. Don't over-feed, practice the 5Cs, and your lawn and plants will thrive.

## Control Compaction

... one of the **5 C's** for **Healthy Soil**

# The 3<sup>rd</sup> C: Cover the Soil

**A bare soil is a vulnerable soil. Keep all soil covered, all year round.**

Your soil needs to be protected, so that its environment is not too hot, too cold, too wet, or too dry. Your invisible workforce will be as productive as possible when you provide them with a safe environment. Here are some tips for shielding your soil.

- **The best cover is a growing plant**, but that may not always be possible between plantings, or when your plants are very young and don't cover much area, so check out the options below.
- **You can cover bare soil with plant residues, compost, or organic mulches.** These materials will also feed your underground workforce.
- **You can also use inorganic mulches**, such as stones, crushed rock or brick, or plastic weed-block. Some heat-loving plants respond well to black sheet plastic as a mulch. These materials don't feed your critters, but they do protect them.
- **Some gardeners like to use corrugated cardboard.** You can cover the entire bed, cutting holes where you want to plant seedlings or place seeds. The cardboard protects the soil, keeps weeds at bay, and eventually breaks down and feeds your underground workforce.
- **Don't remove your annual plants in the fall.** If you want to make the garden appear less messy, you can cut your plants at their base and leave them on the soil, perhaps mixed with leaves or other organic residues. *Leave the roots in the soil, however: they are feeding your underground workforce!*

## Cover the Soil

... one of the **5 C's** for **Healthy Soil**

# The 4<sup>th</sup> C: Crop and Plant Diversity

## Diversity is nature's secret weapon.

If you have a lot of different types of plants above ground, you will end up with greater soil critter diversity below ground. Different plants tend to attract and nurture different types of underground critters – all of them good for your soil and your plants.

Why is diversity so important? There are several reasons.

First, you want your soil's underground workforce to include lots of "specialists". These are microbes that are really, really good at specific tasks, such as protecting your plants from certain diseases. The more different types of microbes you have in your soil, the more likely it will be that your plant can find the help it needs help to fight off a pest or disease.

Second, you want your workforce to be "resilient". That means it has lots of different types of soil microbes. Many do the same good things, but they do them under different conditions. One group might work at high temperatures but go to sleep at lower temperatures. If you have good soil microbe diversity, there will always be the right soil critter available for the right set of conditions. That way, your underground workforce is producing results for you and your plants no matter what the weather brings.

Here are some crop and plant diversity tips:

- **Rotate your plantings of annuals.** Rotating your plants breaks up the disease cycle and also brings new types of soil microbes to the area each year, keeping soil microbe diversity levels high.
- **Use compost.** Well-made, mature compost is full of all sorts of helpful soil microbes. In fact, this is perhaps compost's greatest strength. Adding compost yearly refreshes the pool of "experts" in your soil, so that your plants have a deep pool of potential partners to draw on whenever the need arises.
- **Have some perennials in your garden.** Perennials feed soil critters all year long, even in winter, which helps to maintain diversity and overall soil health.
- **Use native species.** Native plant species will naturally encourage the development of a community of soil critters that is both diverse and well suited for your lawn and garden environment.
- **Have pollinator-friendly plants in your mix.** They will add to the overall health of your lawn and garden ecosystem, plus add their own underground workforce specialists to the mix.

## Crop and Plant Diversity

... one of the 5 C's for Healthy Soil

# The 5<sup>th</sup> C: Compost and Other Soil Improvers

**It's the soil microbes that, over time, improves soil. Make sure that what you put in the soil helps rather than hinders their work.**

Your underground soil workforce consists of living creatures, with the same physical needs that we have – food, water, air, and a safe habitat. Left to their own devices, as in natural ecosystems, they will build an environment in which they will have all of these things in abundance.

When we add things to the soil, we should do so carefully and consciously. Otherwise, we may well do more harm than good. Here are some tips for nurturing your soil with inputs that help and do not harm your underground soil workforce.

- **Adding compost is always a good idea.** Compost feeds your soil critters, provides nutrients for your plants, builds organic matter in your soil, and generally helps nurture your soil's ecosystem. But it also has one special feature that other inputs don't have: it provides additional microbial diversity to your soil. This diversity is good for several reasons (see the 4<sup>th</sup> C – Crop and Plant Diversity) which can otherwise be easily lost. For instance, some inputs can reduce diversity by giving advantages to some critters over others. However, mature compost will add to soil diversity, supporting your underground workforce and plants.
- **If you build a healthy soil, adding compost every year, you can reduce your fertilizer usage.** In fact, some very healthy soils don't need any fertilizer at all, just some compost to replace any nutrients removed with the harvest. Your soil's underground workforce will recycle the nutrients in the compost you add, plus get more nutrients out of the minerals in your soil. No extra feeding necessary.
- **Use all fertilizers, both synthetic and organic, carefully and conservatively.** Until you build your soil's underground workforce to a suitable size and strength with the use of the 5Cs, you might need to use fertilizer. The 5Cs' soil-building process may take a few years. During this time, it is very important to not overly apply fertilizer. A soil test will help, but you need to remember that a soil test only tells you what is in the soil and available to the plants at the time the soil was sampled – it does not tell you how much nutrition your soil's underground workforce will make available during the course of the season. This additional nutrition can be substantial in a healthy soil. So keep fertilizer levels modest and reduce the amount applied each year as your soil's health improves.
- **Only use pesticides if necessary -- never as a prevention technique.** As soils get healthier, so do plants. As plants get healthier, they protect themselves from diseases and pests (often working in partnership with your soil's underground workforce). If you have a pest or disease problem, this is an indicator that the health of your soil is less than is needed to fully protect the crop or plants at this time. In these cases, use pesticides if you must, but once the pest has been killed off, intensify your focus on the 5Cs!

## Compost and Other Soil Improvers

... one of the 5 C's for Healthy Soil