Turning Firebreaks into Fertile Fields:

Recommended Practices for Sustainable Firebreak Food Production in the Northwest Territories

TERRITORIAL Agrifood ASSOCIATION

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Recommended Practices for Sustainable Firebreak Food Production in the NWT

Firebreak Farming: Transforming Firebreaks into Productive Farmland

The NWT food system is highly reliant on southern imports and is increasingly impacted by climate change. To improve the reliability of food access in the NWT, we must increase local food production.

In the Northwest Territories, accessing suitable land for food production can be a challenge, especially in the aftermath of wildfires. However, firebreaks—clearings made to control wildfires—offer a unique opportunity. With careful planning, firebreak farming can help grow food, provide economic benefits, and contribute to community resilience.

However, firebreaks are designed to slow or stop the spread of fire. They may be less fertile and support different vegetation compared to adjacent areas. Unlike most farmland, the firebreak location will not have been chosen based on agricultural potential. This means a mindful approach to growing food is necessary.

Different food crops have different levels of flammability.. Fire suppression and food production can work together with careful consideration. Contact the Territorial Agrifood Association for a list of suitable food crops for firebreaks.

As you build your firebreak farm, it is important to keep top of mind that the land is first and foremost a firebreak.

Key advantages of turning firebreaks into farms

Steps to Develop a Firebreak Farm

A Critical First Step

1 Assessment and Planning

Successful firebreak farming starts with a well-thought-out plan. Here are key elements to consider:

- **Land Use Identification:** Determine the purpose of the land, whether for crop production, pasture, or livestock. Your plan should specify which types of crops or animals you intend to grow, based on community needs and climate suitability. Community consultation and consideration of the firebreaks primary use should be a key part of your planning.
- **Land Evaluation:** Assess the firebreak site to understand its physical features, including access to water, soil quality, and any remaining vegetation. Soil tests (e.g., NPK nutrient levels, pH, texture) are crucial for determining the necessary amendments.
- **Regulatory Considerations:** Ensure compliance with local regulations and consult with municipalities, Indigenous governments, and relevant land management authorities and regulatory bodies.

2 Vegetation Removal & Land Clearing

After assessing the land and acquiring the necessary regulatory approvals/ permissions, the next step is to clear the area of vegetation:

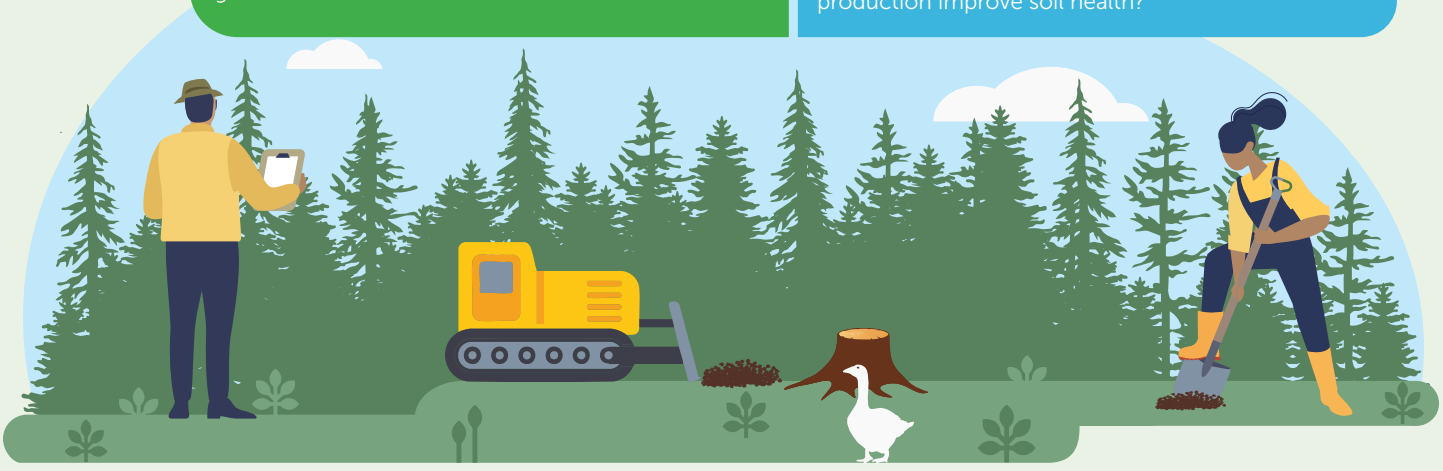
- **Above Ground:** Remove trees, shrubs, and other vegetation through mechanical or manual methods. Grazing livestock (for example geese, goats, cattle) is a form of manual land clearing. Controlled burning may be an option, depending on seasonal timing and local regulations. If you intend on using a chipper or mulcher, chose a tool that produces a small enough output. Pile this output to create a self-generating compost.
- **Below Ground:** Stumps, roots, and debris must also be cleared to prepare a clean seedbed. Heavy machinery such as stump grinders, mulchers, or bulldozers can be used to break up the soil and clear debris. Although it is necessary to remove large below ground obstacles, keep in mind that you wish to disturb the soil as little as possible.

Check this NWT/Yukon land clearing project out for ideas. yukon.ca/en/alternative-agricultural-land-clearing-practices-territories-reduce-greenhouse-gas-emissions-and

Considerations

Can the cleared vegetation be re-purposed as fuel or compost?

Would employing practices like grazing or biochar production improve soil health?



3 Soil Testing and Amendments

Proper soil preparation is crucial for successful food production.

- **Soil Testing:** Assess the nutrient levels, pH, and organic matter content of your soil. You can use small test kits yourself or contact the TAA for support for laboratory soil testing. The results of these tests will help you determine if soil development is needed.
- **Soil Improvement:** After soil testing, amend the soil to improve its fertility and structure. Compost, manure, biochar, organic matter, fertilizers, and/or lime may be needed depending on test results.

4 Site Preparation & Soil Building

To ensure healthy plant growth:

- **Soil Tilling**: Break-up compacted soil layers, allowing air, water, and plant roots to thrive. Use machinery like a tractor or skid-steer.
- **Organic Matter Addition:** Add compost, manure, or other organic material to build the soil so that it can retain moisture and feed the plants.
- **Raised Beds & Sustainable Practices:** For the first few years, consider using raised beds to build healthy soil above ground, which reduces stress on the soil and simplifies weeding and planting. In a firebreak there will be limitations on the size and type of raised beds you use – you cannot construct raised beds in a firebreak but you can use soil to raise the planting area.

For assistance on determining what is needed to improve your soil, see the TAA's info sheet on "Soil test next steps".

5 Erosion Control & Drainage

Protecting the land from erosion and managing water flow are vital components in managing land that has been recently cleared.

- **Erosion Control:** You can use techniques like contour plowing, cover cropping, and other natural erosion barriers to prevent soil loss.
- **Drainage Management:** It is a good practice to install drainage systems like swales, runoff ponds, or berms to manage water flow.

6 Crop Selection & Planting

Choosing the right crops is key to long-term success:

- **Select Appropriate Crops:** Choose crops that are suited to the soil type and climate:

Focus on plants that will meet community food needs, such as root vegetables, leafy greens, berries.

You should also choose plants that retain a lot of water and/or have a high burn temperature. Forage crops are generally not suitable.

If livestock are part of the fire break farm's vision, this should be identified early, when regulatory permissions are sought. Adding livestock to the farm's plan at a later stage could cause challenges with the land manager.

Seasonal Timing:

Your first crop is always your soil. If the soil is not ready in time for the planting season, consider planting cover crops or green manure to improve soil health for the next growing cycle.

7 Long-Term Sustainability & Crop Management

To maintain soil health and ensure long-term success:

- **Soil Monitoring:** Test the soil regularly to monitor nutrient levels and check for compaction. Adjust soil management practices as needed to maintain fertility.
- **Regular Attention:** Your firebreak farm will need regular attention. Water, weed, and monitor for pests throughout the growing season.

Conservation Practices

Implement sustainable farming practices such as crop rotation, integrated pest management, and minimal tilling to prevent soil depletion.

8 Harvesting

As your crops mature, it is time to reap the rewards of the firebreak farm. Avoid harvesting during wet conditions to reduce damage to the soil and crops. Do not harvest if fire retardant has been dropped on your crops. See the TAA Agribrief on Impacts of Forest Fire Retardant on Food Production Areas for more information.

- **Training & Tools:** Ensure harvesters are trained in harvesting techniques and the safe use of equipment. Keep fire safety equipment nearby if harvesting during wildfire season.
- **Harvest in consideration of next steps:** Harvest systematically to ensure efficiency and minimize missed areas.
- **Clean Up:** Remove all debris and leftover materials to reduce fire hazards and prepare the area for future crops.
- **Cover Cropping:** Plant a cover crop after harvesting to help maintain soil health.

9 Addressing Long-Term Challenges

All forms of food production in the NWT face challenges. On your firebreak farm, consider the following:

- **Wildlife Management:** How will you plan to protect crops from herbivores and pests. You cannot put fences on a firebreak. You may need to rethink your crop choices.
- **Sustainable Infrastructure:** Consider using non-permanent structures for farming operations, such as temporary shelters or storage but always check with community firebreak authorities in advance.

Conclusion

With careful planning, firebreak farming can transform cleared lands into productive and sustainable agricultural areas. By following the steps outlined above and incorporating sustainable farming practices, growers can build resilience, provide fresh food, and help preserve the environment for future generations.

For more guidance and resources on soil health, crop selection, and sustainable farming, reach out to agricultural specialists, the TAA, or local experts.

Together, we have the power to transform firebreaks into flourishing fields of abundance. Let's unite our efforts and turn these spaces into thriving hubs of sustainable food production, nurturing both the land and our communities. The future starts with us—let's make it grow.

Long-term care

Continue monitoring soil health, crop yield, and sustainability practices for ongoing success.

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The TAA represents the interests of the NWT agrifood industry. We are committed to building a sustainable, resilient agrifood system through entrepreneurship and innovation.

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