Grow and Preserve

4-H Pledge

I pledge:

My **HEAD** to clearer thinking,
My **HEART** to greater loyalty,
My **HANDS** to larger service,
My **HEALTH** to better living,
For my club, my community,
my country and my world.

CANADA
4-H Saskatchewan

4-H Motto

Learn To Do By Doing

Leadership Development Pillars

Community Engagement & Communications

Science & Technology

Sustainable Agriculture & Food Security

Environment & Healthy Living

The Rural and Remote Youth Experiential Learning Outreach is supported by the Government of Canada's Emergency Community Support Fund and Community Foundations of Canada.

Emergency Community Support Fund

COMMUNITY FOUNDATIONS OF CANADA | FONDATIONS COMMUNAUTAIRES DU CANADA

Canada

Welcome to 4-H Saskatchewan's Grow and Preserve Kit!

In this kit members will learn about growing and preserving their own food, where these methods came from and why they are still important today.

The astonishing fact about food preservation is that it has permeated every culture at nearly every moment in time. To survive ancient people had to harness nature. In frozen climates they froze seal meat on the ice. In tropical climates they dried foods in the sun.

Food by its nature begins to spoil the moment it is harvested. Food preservation enabled ancient people to establish roots, live in one place and form a community. They no longer had to consume the kill or harvest immediately, but could preserve some for later use. Each culture preserved their local food sources using the same basic methods of food preservation.

Historically, drying, freezing, curing, fermenting and canning are a few of the most popular ways of preserving foods. This was a time before grocery stores and supermarkets when most people had to grow and keep their food for long periods of time or trade with others in their area for goods they could not grow.

In ancient times the sun and wind would have naturally dried foods. Evidence shows that Middle Eastern and Asiatic cultures actively dried foods as early as 12,000 B.C. in the hot sun. As we get closer to modern times, each community left remnants of the methods and materials used to not only reflect their food supplies—fish, wild game, domestic animals for example, but also their preferred preservation methods.

There was a significant increase in food preservation in the sixteenth century owing to the arrival of new foods in Europe. Ketchup was an Asiatic fish brine that traveled the spice route to Europe and eventually to America where someone finally added sugar to it. Spices were added to these pickling sauces to make clever recipes. Soon chutneys, relishes, piccalillis, mustards, and ketchups were commonplace. Worcester sauce was an accident from a forgotten barrel of special relish. It aged for many years in the basement of the Lea and Perrins Chemist shop.

Canning is the newest form of food preservation found in the 1790's by French confectioner Nicholas Appert.

In 1864 Louis Pasteur discovered the relationship of why canning worked. By bringing the temperature high enough to destroy microorganism and inactivate enzymes.

Preserving forms

Fermenting

Fermentation was not invented, but rather discovered. It is assumed that the first beer was discovered when a few grains of barley were left in the rain. Opportunistic microorganisms fermented the starch-derived sugars into alcohols. So too can be said about fruits fermented into wine, cabbage into Kim chi or sauerkraut, and so on. The skill of ancient peoples to observe, harness, and encourage these fermentations are admirable. Fermentation is a valuable food preservation method. And not only does preserve foods, but it also can create more nutritious and/or palatable foods from less than desirable ingredients.

Pickling

Pickling is preserving foods in vinegar (or other acid). Vinegar is produced from starches or sugars fermented first to alcohol and then the alcohol is oxidized by bacteria to acetic acid. Wines, beers and ciders are all routinely transformed into vinegars. Think of names like Red Wine Vinegar or Apple Cider Vinegar.

Pickling may have originated when food was placed in wine or beer to preserve it, since both have a low pH. Perhaps the wine or beer went sour and the taste of the food in it was appealing. Containers had to be made of stoneware or glass, since the vinegar would dissolve the metal from pots. Never ones to waste anything our ancestors found uses for everything. The left over pickling brine found many uses. The Romans made a concentrated fish pickle sauce called 'garum'. It was powerful stuff, packing a lot of fish taste in a few drops.

Curing

The earliest form of curing was dehydration. Early cultures used salt to help desiccate foods. Salting was common. Culinary professionals would make variations of foods by choosing raw salts from different sources (rock salt, sea salt, spiced salt, etc.). In the 1800's it was discovered that certain sources of salt gave meat a red color instead of the usual unappetizing grey.

Jam and Jelly

Preservation with the use of honey or sugar was well known to the earliest cultures. Fruits kept in honey were commonplace. In ancient Greece quince was mixed with honey, dried somewhat and packed tightly into jars. The Romans improved on the method by cooking the quince and honey producing a solid texture.

Canning

Canning is the process in which foods are placed in jars or cans and heated to a temperature that destroys microorganisms and inactivates enzymes. This heating and later cooling forms a vacuum seal. The vacuum seal prevents other microorganisms from recontamination of the food within the jar or can.

The world's tallest bean plant was grown by Staton Rorie (USA) in 2003. It was 46 feet 3 inches (14.1m) tall.

Supplies:

- Bean seeds (2)
- Seed starter pucks (2)
- Mason Jar

Directions

Planting:

1. Sow (plant) seed in peat pots 3 to 2 weeks before transplanting seedlings to the garden. The optimal indoor temperature is 65°F (18°C) until germination.
2. Sow each seed 1 inch (2.5 cm) deep.
3. Seeds will germinate in 4 to 10 days.
4. Transplant beans into the garden after the soil has warmed to at least 70°F (21°C).
5. Space bush beans 6 inches (15 cm) apart in all directions; space pole beans 4 inches (10 cm) apart.
6. When sowing pole bean seed , put poles or a trellis in place for vines to climb at the time of or before sowing.
7. Bush beans are usually determinate with a 1 to 2 week period of harvest—then the plant will be finished; poled beans are indeterminate with a continuous harvest over 6 to 8 weeks if they are picked every two days and are not allowed to ripen on the vine.
8. Keep the soil just moist; letting the soil dry out will interrupt pod development.
9. Grow beans in full sun for best yield.
10. Avoid planting beans where cabbage family plants or onions have grown recently.

Ethel R. Wright in the *British Columbia Women's Institutes Centennial Cookbook* (1958) describes how pioneer women watched First Nations women and "learned to smoke and dry fish and meat, by placing it on willow racks above a fire and how to dry berries"

Planting continued:

Tips for planting and harvesting

- 4-2 weeks before the last frost in spring: sow seeds indoors for transplanting out after a week or two after the last frost.
- 1 week after the last frost in spring: direct sow bush and pole beans in the garden when the soil has warmed to at least 60°F (16°C)
- Every 2 weeks after direct-sow succession crops of bush beans in the garden until mid- to late-summer
- Common bean pest enemies include aphids, bean leaf beetles, leafhoppers, cabbage loopers, cucumber beetles, flea beetles, Mexican bean beetles, and whiteflies.
- Common diseases include Anthracnose, bacterial blight, and wilt, bean rust, common mosaic, fusarium wilt, downy mildew, powdery mildew, yellow mosaic.

Harvesting:

- Bush beans will be ready 50-60 days after sowing
- Pick beans when pods are young and tender, about 3 inches long.
- Cut or snap beans off their stalk (careful not to tear pods from branches)
- Continue to pick bean pods as they will continue to flower throughout the summer

Storing and Preserving:

- Unshelled beans can keep up to a week in the refrigerator (do not wash before refrigerating)
- Shelled beans can be blanched (see directions on next page) and frozen up to four months
- Canning beans will help them last for 6 months or more.

Preservation Methods:

Blanching

Blanching is a quick way to cook something and preserve it at it's peak crunch and taste.

1. Boil a large pot of water (one gallon per pound of food)
2. Place cleaned beans into the rapidly boiling water (1.5-2 minutes)
3. Remove with a slotted spoon
4. Place immediately into a bowl of ice water (same time they were in the boiling water)
5. Pat try and place into a freezer safe container or bag
6. Blanched vegetables will last up to 4 months in the freezer.

Canning

1. Wash your beans (remove and dirt or bugs)
2. Trim each end of the green bean, set aside
3. Clean your jars
    - Jars need to be sterile to ensure your beans placed into the jars will keep
    - clean jars with hot soapy water and rinse well with hot water
    - place upside down on a clean tea towel to drip dry
4. Fill jars to the top with beans
5. Tap the jar on the counter (gently) to help the beans settle down and top up with more beans (should be filled to the rim)
6. Place new flat lids in a pot of boiling water– to sterilize
    - use a pair of tongs or two forks to carefully grab the lids out of the water
    - do not use old flat lids– they will not create a seal
7. Use a pressure canner or a large stock pot
    - for the pressure canner – add in 2 quarts of water
    - for the stock pot – add enough water to cover the jars
8. Place a 1/2 teaspoon of canning salt into each pint jar
9. Fill each jar with boiling water (to the neck)
    - Harold is showing us the neck of the jar
10. Wipe rim with paper towel
11. Place hot flat lids on each jar
12. Screw on the outer lid fingertip tight (once you hit resistance give it one more twist).
13. Place jars into pre-paired Pressure canner or Stalk pot
    - making sure no jars are touching
14. Let boil for 5-10 minutes (until steam is coming out of the pressure cooker)
15. Once your pressure gage is up to 10 pounds
    - set timer for 20 minutes for pint jars and 25 minuets for quart jars
    -for your boiling pot put the timer on and boil for 20 minutes
16. Once timer goes off turn burner off and allow pressure to release to zero
    - remove the weight and open lid away from your face
    - for boiling pot– remove lid away from face
17. Remove jars with a jar lifter
    - do not use hands as the jars are burning hot

18 Listen for your jars to pop as they are cooling
    - if any do not pop they have not sealed correctly
    - save the jars that did not pop and refrigerate and eat within 3-5 days

Notes:

CANADA
4-H Saskatchewan

Saskatchewan 4-H Council

3830 Thatcher Avenue

Saskatoon, SK

S7R 1A5

Phone: 306-933-7727

Fax: 306-933-7730

Email: info@4-h.sk.ca

Website: www.4-h.sk.ca