

Apples For Everyday Use

W. R. MARTIN, JR., AND FLORA L. CARL



Apples raw and cooked have long been a favorite fruit because of their colorful beauty, pleasing aroma, tart flavor, crisp texture, good keeping qualities, and good nutritional value. The food and health values of the apple have been recognized by countless generations of mankind, and this legendary evaluation has been confirmed and even exceeded by the more exact measurements of modern science.

Apples now are known to be valuable because of their content of acid and pectin and their bulk, all of which promote good intestinal hygiene; their minerals and vitamins, which are essential for growth;

and health; and their sugars and starches, which furnish energy to the body. The sugar and starch (carbohydrate) content of apples is sufficiently low (14.9%) to give this fruit special value in reducing diets and in some diabetic diets. While not a very rich source of minerals, apples compare favorably with other fruits in this respect. The vitamin content of apples varies widely with variety, storage time, temperature and humidity, method of cooking, and conditions of growth.

Fruits, as a class, do not contain much vitamin A or B. The average number of units of vitamin A in apples is a little more than for oranges, much more than pears, and a little less than bananas. Apples contain about the same amount of vitamin G as pears and bananas but less than oranges. The amount of vitamin C, ascorbic acid, varies with the variety, the storage and preparation of the apples. Fresh, raw apples, eaten skin and all, in generous amounts, will contribute an appreciable amount of this important vitamin to the diet.

Eating hard, tart, juicy, raw apples strengthens and cleans the teeth as the chewing of hard, crisp food brings more blood to the teeth and gums and this makes for better development of the jaws and teeth.

No food is easily digested by every person, but most people can eat apples, particularly cooked apples, without any discomfort. Experimental work shows that 97 to 98 persons out of 100 have no discomfort from eating apples.

The value of apples in the treatment of intestinal disorders has been proven by clinical investigations. For the past 10 years, apples in the form of raw fruit, or in the form of dried apple powder (Aplona) have been accepted as a valuable treatment of intestinal disorders of children. Their special value is probably due to the fact that the edible portion of apples contains more "pectin" than any other fruit. In the digestive system, pectin has the ability of combining with water and forming a soft, bulky mass which envelops the toxic substances and aids in their normal elimination. It is said too that fruit eaten before and between meals has a definite effect on the bacterial flora of the large intestines, creating a gastric environment unfavorable to the survival of certain harmful bacteria. In the daily diet of the normal person, apples will help to maintain a healthy condition in the intestinal tract. The specific benefit may be due to their acid, which adds zest and flavor thus stimulating digestion, or to their vitamin C content, to their pectin, to some other unidentified material, or to a combination of several or all of these factors.

Raw apples are particularly desirable in the winter meals of farm families. Their tart flavor, bright color, and crisp juicy texture fit in well with the fresh meat and canned and stored vegetables. Cooked apples can be used in such a variety of ways that they are a real asset when planning three meals a day from a rather limited variety of foods. Apples are favorites for school lunches and for the "snack" between meals. Since they are inexpensive, available the year round, and can be used in any number of ways, one might well consider them when planning any day's meals, summer or winter.

APPLE GRADES

For many years, apple grades were so varied and unstandardized that the grade label was meaningless. Missouri, in 1939, adopted a State Apple Grade and Labeling law, which is standardizing the apples found on Missouri markets. All apples offered for sale in the State must now be labeled as to variety, grade and minimum size, and apples that do not meet the requirements of any of the established grades must be labeled and sold as "Culls."

From the viewpoint of the consumer, there are too many official grades of apples, yet this large number of grades seems necessary when we look at the problem from the grower's angle. Official Missouri grades are identical with the Standard U. S. grades of apples except that Missouri recognizes a "Domestic" grade and does not recognize an "Unclassified" designation. This latter term indicates an ungraded product and ungraded fruit under the Missouri standards must be labeled "Culls" since the presence of cull apples prevents the lot from meeting any grade requirements.

In addition to the grades indicated in Table 1, (page 4) both the U. S. standards and the Missouri standards recognize the following combination grades:

- Combination U. S. Fancy—U. S. No. 1 (Comb. U. S. Fcy.—U. S. No. 1.)
- Combination U. S. No. 1—U. S. Commercial (Comb. U. S. No. 1—U. S. Com.)
- Combination U. S. No. 1—U. S. Utility (Comb. U. S. No. 1—U. S. Util.)

The requirement of each combination grade is that at least 50% of the fruit in any lot meet the requirements of the higher grade and that the balance be of the lower grade.

Combination grades are frequently good values because the saving in separating the two grades is usually passed on to the consumer.

The most popular apple grades with both producers and consumers are U. S. No. 1 and U. S. Utility, the former for storage, dessert, and general use and the latter for culinary purposes.

TABLE 1.—OFFICIAL MISSOURI APPLE GRADES.

Quality Group	Official Grade	Grade Characteristics	Suggested Uses
1. First quality ¹ Mature Handpicked	{ "U.S. Fancy" "U.S. No. 1" "U.S. Commercial" }	No. 1 quality—high color	Fancy dessert ³ apples; excellent storage stock.
		No. 1 quality—good color	Dessert and general use; excellent storage stock.
		No. 1 quality—no color requirement	General culinary ³ uses; good storage stock.
2. Second quality ² Mature Handpicked	"U.S. Utility"	No. 2 quality—no color requirement	Ordinary dessert, culinary, and processing ³ uses; fair storage stock.
3. Mature Windfalls	"Domestic"	Same as U.S. Utility except apples may be "drops" and have minor bruises	Ordinary dessert, culinary, and processing uses if used immediately; unsatisfactory for storage.
4. First quality Immature (green) Handpicked	"U.S. No. 1 Early"	No. 1 quality—no color requirement—green	Excellent for sauce and pie; unsatisfactory for even short storage periods.
5. Second quality Immature (green) Handpicked	"U.S. Utility Early"	No. 2 quality—no color requirement—green	Good for sauce and pies. Unsatisfactory for even short storage periods.
6. Hail damaged apples Mature Handpicked	"U.S. Hail"	U.S. No. 1 requirements except unbroken or healed hail marks permitted	Good culinary and processing apples. Fair storage stock for relative short periods.
7. Cull and Ungraded Apples	"Culls"	Apples that do not meet above grade requirements, includes seriously damaged, wormy, immature and misshapen fruit.	Economical for some culinary and processing uses but labor in preparing and paring loss is much greater than in graded fruit. Unsatisfactory for even short storage periods.

¹First quality may include apples having very minor blemishes which cause no waste and do not detract from the appearance or keeping quality.

²Second quality may include apples having blemishes which may cause slight waste and which do not seriously detract from the appearance or keeping quality.

³By the term *dessert* apples in this publication, are meant apples eaten raw as out of hand, or used in salads, etc. *Culinary* apples are those adapted to cooking such as baking, frying, sauce, pies, etc., and *processing* apples are those used in quantities at harvest time for canning, canned sauce, apple jelly, apple butter, jelly stock, apple cider, etc.

Size is *not* a grade requirement in either the U. S. standards or the Missouri grades, but the minimum size of any lot of apples must be stated on the label such as Jonathan, U. S. No. 1, 2½ in. min., or Winesap-U. S. Fancy 2¼-2½ inches.

Condition as to normal ripening and decay is also separate from grade except at packing time. Apples that have been stored may be of U. S. No. 1 grade yet show some decay and be over-ripe due to long storage. The prospective purchaser should note the condition of any lot of fruit in addition to the grade label.

In purchasing apples for family use, the consumer should recognize that there is a close relationship between color and dessert flavor and also between color and storage quality. Highly colored fruit is usually of the best flavor for the variety and highly colored fruit will store most satisfactorily. Color is not so important for apples which are to be used for culinary or processing purposes. The size of apples should also be considered. The larger sizes lose the smallest percentage in paring and coring, but smaller sizes are of equal quality for either dessert or culinary purposes. Large apples of high color are preferable for baking. "School boy" apples (2-2¼ inches) are quite popular in many communities for school lunches and to be kept convenient for children because of their economy.

APPLE VARIETIES AND THEIR SEASONS

In order to use apples at their best, the consumer should recognize that different varieties reach their best condition at certain periods during the harvest and storage seasons. Practically all varieties are harvested at the "hard" stage, a condition that is good for processing and culinary uses but that is too hard for best dessert use because the best eating flavor has not yet developed. An apple after it is harvested, continues its ripening process at a rate that depends on storage conditions. In normal outside fall temperatures, many varieties reach the best eating stage within a few days; yet under cold storage temperatures of approximately 32° F., the same stage of ripening may be delayed several months. The following table may be of some value to the consumer in selecting apples for use in their best condition.

For the most satisfactory use of apples, the consumer should recognize that they should be used not only in their best season but that certain varieties of apples are better for certain uses. For eating out of hand, apples should be "firm ripe" and full flavored. Over-ripe apples are soft, mealy and past the best eating stage. For culinary and processing purposes, apples may be in the "hard" or "firm" stage of ripening. These stages are reached earlier in the

TABLE 2.—LEADING APPLE VARIETIES OF MISSOURI AND THEIR SEASON.

Variety	Harvest Season	Processing Season	Common Storage Season	Cold Stg. Season
Transparent	June 20-July 15	June 20-July 15	None	None
Duchess	July 10-Aug. 1	July 10-Aug. 1	None	None
Wealthy	Aug. 1-Sept. 1	Aug. 1-Sept. 1	None	None
Jonathan	Aug. 25-Sept. 25	Aug. 25-Oct. 1	Sept. 15-Nov. 15	Nov. 1-Feb. 15
Grimes Golden	Sept. 1-Sept. 20	Sept. 1-Oct. 1	Sept. 10-Oct. 15	Oct. 15-Jan. 1
Golden Delicious	Sept. 20-Oct. 10	Sept. 20-Oct. 20	Oct. 1-Dec. 1	Nov. 15-Mar. 15
Delicious	Sept. 20-Oct. 1	Sept. 20-Oct. 10	Oct. 1-Nov. 1	Nov. 1-Mar. 1
Ben Davis, Gano	Oct. 1-Nov. 1	Oct. 1-Nov. 15	Oct. 1-Feb. 1	Dec. 1-May 1
Winesap	Oct. 1-Oct. 10	Oct. 1-Dec. 1	Oct. 1-Feb. 15	Jan. 1-May 1
York Imperial	Oct. 1-Oct. 15	Oct. 1-Nov. 15	Oct. 1-Feb. 15	Dec. 15-Mar. 1
Stayman	Oct. 1-Oct. 10	Oct. 1-Nov. 15	Oct. 1-Feb. 15	Jan. 1-May 1
Rome Beauty	Oct. 1-Oct. 15	Oct. 1-Nov. 15	Oct. 1-Feb. 1	Dec. 1-Apr. 1
Black Twig	Oct. 1-Oct. 10	Oct. 1-Nov. 15	Oct. 1-Feb. 15	Jan. 1-May 1

storage season than the ripe, crisp stage preferred by most people for eating.

In order to have apples in the best condition for daily use, the family should have available several varieties of apples and utilize cold storage facilities in order to have fresh fruit during the late winter and early spring months.

USES OF APPLES

Apples are a favorite fruit with thrifty Missouri families, for they are relatively inexpensive, they keep well, they have good flavor, a pleasant texture, an attractive appearance, and in various forms they are suitable for any meal of the day. They might be served almost as frequently as potatoes since they can be used in a greater variety of ways than any other fruit.

They may be eaten raw at or between meals, or cooked and served with meat, with vegetables, in salads, in pastry, in bread, in cakes and candy, or processed and stored for later use. The fairly firm texture of the raw apple makes it especially desirable to combine with such foods as celery, nuts, pineapple, and cabbage.

Cooked apples blend well with softer foods, as tapioca, rice, other cooked fruits and various kinds of doughs. Dried apple pulp is used commercially in making yeast bread and in the treatment of

TABLE 3.—LEADING APPLE VARIETIES OF MISSOURI AND THEIR ADAPTED USES.

VARIETY	U S E S				
	Eating	Baking	Pie	Salad	Sauce
Transparent	Fair	Poor	Excellent	Fair	Excellent
Duchess	Poor	Poor	Excellent	Fair	Excellent
Wealthy	Fair	Poor	Excellent	Fair	Excellent
Jonathan	Excellent	Excellent	Excellent	Good	Good
Grimes Golden	Excellent	Fair	Good	Good	Excellent
Golden Delicious	Excellent	Good	Good	Excellent	Good
Delicious	Excellent	Fair	Fair	Excellent	Good
Ben Davis and Gano	Poor	Good	Excellent	Poor	Fair
Winesap	Good	Good	Good	Good	Good
York Imperial	Fair	Good	Good	Poor	Fair
Stayman Wine-sap	Good	Excellent	Excellent	Good	Excellent
Rome Beauty	Fair	Excellent	Good	Fair	Good
Black Twig	Good	Excellent	Excellent	Good	Excellent

some types of digestive disturbances. The juice from apples is used alone, or in combination with other fruit juices for a beverage and for making jelly. Cider and vinegar are made from apple juice.

The different varieties of apples have such distinct characteristics that if one is to use them to the best advantage, it is essential to recognize varieties by name, know grades, know when they are in their best season and be familiar with their flavor, texture, and behavior in cooking. This information is given in Tables 1, 2, and 3, showing the official Missouri apple grades, the leading varieties, and the uses to which each is best adapted.

The best eating apples are firm and highly colored. They have "snap", a rich, aromatic flavor, and a crisp juicy texture. Cooking apples should have a distinct apple flavor, a fine-grained flesh that is juicy, and enough acid to be at least medium tart.

Some varieties of apples hold their shape much better than others when cooked. Acid seems to hasten the softening of fruit in cooking, so tart apples usually fall apart or become mushy more quickly than apples with less acid. Grimes Golden, while low in acid, cook satisfactorily. If lemon juice is added, the time for cooking apples is shortened. For baking, one would prefer apples

like the Stayman Winesap, Rome Beauty, Black Twig, and Jonathan. They are large and they retain their shape, even when cooked quite tender. For pie, dumplings, and other pastry, the apples should cook tender rapidly and yet hold their form, while apples for sauce should cook tender rapidly but need not hold their shape.

All properly cooked apples whether they are boiled, steamed, baked, fried or made into a sauce have a distinct, prominent apple flavor which is pleasingly tart. If they are boiled or steamed as in pie and other pastry, they are translucent and bright in color, the pieces are distinct but soft, they are tender enough to cut with a fork, and they are juicy. Baked apples have only slightly cracked skins, the pulp is juicy, the apple stands up well, and yet it can easily be cut with a fork. Apple sauce that is properly cooked will mound, it is fine-grained but not pasty, and it has a bright color. It is not discolored with slow or over-cooking, or with spice.

Good flavor in a raw apple does not always indicate good flavor in the cooked fruit. Lemon juice may be added to improve the flavor of apples with little tartness or those that are over-ripe. It is also recommended for varieties that are hard to cook tender.

APPLE STORAGE

The success of apple storage will depend upon a number of factors, including: (1) the grade of the apples, (2) the maturity of the fruit at storage time, (3) the care in handling and packing, (4) the moisture conditions of the storage, (5) the temperature of the storage, and (6) the length of the storage season in respect to the variety and the storage temperature.

Only the better grades of apples, U. S. Fancy and U. S. No. 1, should be used for storage for late winter and early spring use if stored in commercial cold storages, or for winter use if stored in common storage. Other grades of apples have a shorter safe storage period. (See Table 2.)

Storage apples should be harvested in a "hard" stage. At this stage the fruit has a definite starchy taste and is not yet full flavored. Apples of average or small sizes usually store more satisfactorily than large apples, particularly if the large apples were produced on very young, vigorous trees.

Apples for storage should be handled very carefully and packed tightly to avoid bruising and should be placed in storage immediately. With the Grimes Golden variety the fruit will come out of cold storage better if it is allowed to "yellow" for a few days in common storage. Such a procedure, however, reduces the satisfactory cold storage period for this variety. Other varieties are best stored within a few hours of harvesting.

Moisture in the place of storage should be sufficient to prevent withering, which is the excessive loss of natural moisture. A humidity of 90% or more is desirable. In commercial storages this humidity is usually maintained. In common storages it usually must be maintained by the frequent addition of water to the floor or fruit.

The temperature of the storage is most important, particularly for long storage seasons. In general, the lower the temperature, the longer the satisfactory storage period. In commercial storages, a temperature of approximately 32° F. is maintained, which makes it possible to keep long keeping varieties of apples until May or June. Because of the high temperatures during the fall months, the length of the common storage season is much shorter. (See Table 2.)

For home storage an effort should be made to maintain the lowest possible temperature and yet avoid danger of freezing. Apples will freeze if exposed to temperatures below 30° F. for any great length of time.

It is a mistake to attempt to keep apples for a longer period than the natural storage season. For instance, Grimes Golden should be stored for only short periods while Winesap is more satisfactory for the longer storage periods. Apples should be used before they become over-ripe.

Cold Storage.—The consumer would profit by the use of commercial cold storage if available, since such practice will add two or three months to the period that apples are available. The cost of such storage usually is offset by a reduction in loss of fruit by decay and over-ripeness. The cost of cold storage usually is 25 to 50 cents per bushel for the season ending usually about April 1st. Storage after April 1st may be secured at a slight additional cost. In preparing apples for cold storage the use of oil paper wraps or shredded oil paper mixed with the apples will assist in preventing "storage scald." Such varieties as Grimes Golden, York Imperial, and Stayman Winesap are most subject to scald while Winesap, Black Twig and Ben Davis may scald during a long storage season. Highly colored fruits of the red varieties do not scald as readily as under-colored fruits.

Home Storage.—The most satisfactory home storage or common storage for Missouri conditions is a combination of outdoor storage and cave or basement storage. Winter varieties harvested in October are more satisfactory than fall varieties harvested in September because of the lower October temperatures. (See Table 2.)

Select only hard fruit of the better grades, place in handy containers and place on the north side of a building or in an open shed covering lightly with any convenient material. As the temperature approaches freezing add more protection to prevent freezing of the apples. Before the advent of extreme low temperature move the fruit to a cave or unheated basement. If the cave or basement has a concrete floor, cover the floor with two or more inches of sand which can be moistened from time to time to maintain a high humidity. Most caves and basements require the addition of moisture on the floor or fruit. When outside temperatures are between 45° and 32° it is necessary to open the ventilators of the storage, regulating the openings so as to prevent freezing and to prevent any rise in temperature. Apples should have all possible ventilation possible consistent with a low temperature above freezing and a high humidity. The value of the outside storage during the fall and early winter is that under Missouri conditions the air temperature in a protected place is lower than the soil temperature that controls the temperature of the cave or basement.

APPLE CIDER

Apple cider can be of no better quality than the apples used in its manufacture. The apples should be fully ripe, sound and clean. Cider made from several varieties of apples is better than cider made of a single variety, since a blend of flavors is very desirable. Apples of good eating quality usually make the best flavored cider. Since fresh cider is rather sweet, tart apples should be used in the blend. Jonathan, Winesap, Black Twig and Stayman Winesap add acid or tartness. Grimes Golden, Golden Delicious and Delicious make cider that is sweet but lacking in zest or acidity. Blends of these and other varieties are most satisfactory. All varieties of apples should be "firm ripe" of the best eating quality before making cider. This means that the best cider is made after the apples are harvested and allowed to ripen two or three weeks in normal outside temperatures.

Cider making requires a press. The apples should be sorted and washed, and all decayed portions removed before grating and pressing. The cider should be strained through several thicknesses of cloth to remove pieces of pomace. After standing for a few hours it can be "siphoned off" which will further clarify the product. It should be stored in the coolest possible place to retard fermentation.

Cider can be best preserved by freezing if the facilities are available. Pasteurization (heating in sealed containers to 160° for 20 minutes) is a safe means of preservation but gives the product a distinct "cooked" flavor. The use of chemical preservatives (benzoate of soda, fifteen hundredths of 1%, or sulphurous acid, one-tenth of 1%) will preserve the product but will give "off" flavors. The most satisfactory solution is to freeze the cider or make it as it is needed from storage apples.

CIDER VINEGAR

Farm families frequently find it economical to make their own vinegar especially families who make a generous supply of pickled products and who have cider available or can secure it at a reasonable cost.

The usual custom of making a barrel of cider, using part of it as fresh cider and letting the balance "go to vinegar," too frequently results in a poor or useless product because the fermentation process is not thoroughly controlled.

The making of good cider vinegar consists of four distinct operations.

1. Making good clean cider from ripe apples of fall or winter varieties.
2. Securing a yeast fermentation under the proper conditions to change all the fruit sugar to alcohol.
3. Securing a good acetic acid fermentation to change the alcohol to acetic acid.
4. Clarifying the vinegar and preventing later undesirable fermentations and decomposition.

Each of these operations is separate from the other and should not be permitted to overlap.

Cider made from fall and winter varieties of apples, strained, and "syphoned off" as described in cider making is the first operation. Fall and winter varieties have the highest sugar content. Summer apples and green apples do not contain sufficient sugar to make a good vinegar. Sweet apples do not contain any more sugar than tart apples, they simply contain less fruit acid.

The strained and "syphoned off" cider should be placed in a wood barrel or in stone jars. Metal should not be used as a poisonous product may result. The container should be filled about three-fourths full.

The cider should then be inoculated with a yeast starter made from crushing one small cake of yeast in a quart of juice using a cake of yeast and a quart of juice for each five gallons of cider. Special cultivated yeasts are preferred to bread yeasts if available since they will give a more desirable product. They can be secured from biological laboratories. The top of the container should be covered with a double thickness of cheese cloth to exclude dirt and insects. The fermenting liquid should be stirred daily to encourage the desirable fermentation and discourage undesirable fermentation. The temperature is important and the alcoholic fermentation should proceed at a temperature of 65° to 75°F. if possible. Higher temperatures should be avoided or some of the alcohol will be lost by evaporation. At lower temperatures, the fermentation is retarded and requires a longer period. At the optimum temperature, the fermentation will be complete in six to ten days.

After the alcoholic fermentation is complete the juice should again be "syphoned off" without disturbing the sediment and placed in a barrel that has been thoroughly cleaned and soaked with strong vinegar. The barrel should be filled only two thirds full and laid on the side so that a large surface of the liquid is exposed to the air. About three gallons of good preferably unpasteurized vinegar should be added as a starter. Additional holes should be bored in the ends of the barrel to permit more air to circulate through the container. The openings should be lightly covered with cloth or fine varnished screen to keep out insects and dirt. The temperature should not be below 70°F if possible so the container should be placed in a warm location yet avoiding temperatures of over 80°. At 70° the acetic acid fermentation will be completed in four to six months. At lower temperatures, it will take much longer. The use of good starters and proper temperatures results in a quicker process and a more satisfactory product.

When the vinegar has reached the proper acidity or strength, it should be handled to prevent deterioration. It should again be "syphoned off" using only the clear product and placed in containers that can be entirely filled and sealed so as to exclude air. Pasteurization of the vinegar insures a clear product that will remain in first class condition almost indefinitely. Pasteurization can be accomplished by heating the vinegar to 140°-160°F. and sealing in sterile glass containers or by placing the vinegar in containers and heating in a water bath to the above temperature. Vinegar should not be heated over 160°F. and temperatures below 140°F. will not thoroughly sterilize the product.

SULPHURED AND DRIED APPLES

Sulphuring Apples

Use only **fresh** apples. Wash, core, and remove spots which may cause spoilage. Leave apples whole, or cut into quarters or one-fourth-inch slices. The smaller the pieces, the less time will be required for sulphuring.

Place in a flour sack or in a basket which has been lined with cheese-cloth. Hang the bag or basket over a rod and into the open end of a barrel. Spread cotton batting on a small dish and sprinkle with one tablespoon of flowers of sulphur (U. S. P. grade). Surround with shavings and place in the bottom of the barrel. Ignite the cotton and cover the barrel with a rug or other heavy material. Allow to stand for one to four hours, or over night, according to size of apple pieces. Remove apples and store in sterilized containers unless apples are to be used or dried.

Drying Apples

Place the prepared fresh or sulphured fruit in single layers on a rack and place in a dryer, above the stove, in the oven, or outside in the sun. If placed in the oven, leave the oven door partly open to allow the dry warm air to circulate around the fruit and the moist air to escape. The time required for drying will depend upon the thickness of the fruit and the amount of heat. Three to six hours is the usual time required in a dryer, in a stove, or over the stove. The fruit is sufficiently dried when broken ends show no sign of moisture when squeezed between the fingers. Dried fruit should be leathery, not brittle.

After the products are sufficiently dry, store in glass or any insect-proof and dust-proof containers. Once a day for several days remove the product from the container and pour back and forth. Moist and dry particles are thus brought in contact with each other and a more even state of dryness is the result.

Cooking Sulphured and Dried Apples

Cover the fruit with hot water and allow to stand in a covered kettle at room temperature for several hours or until soft. Cook below the boiling point until tender (10 to 20 minutes) in the water in which the fruit was soaked. Sulphured apples may be used the same as fresh apples except that less water is required for cooking. They do not need to be soaked.

GENERAL DIRECTIONS FOR COOKING APPLES

1. Choose the variety of hard or firm apples best suited to the method of cooking to be used.
2. Whenever possible, use apples with the skin, to increase the nutritive value of the dish.
3. Use raw apples frequently, to add crispness and color to the meal.
4. Cook apples in a pan with a well-fitted lid, using as small an amount of water as possible—about 1 tablespoon per apple. Keeping the apples tightly covered through the entire cooking process improves their flavor, color, clearness, and texture.
5. Bring apples to the boiling point rapidly and cook rapidly, as slow cooking gives a darker color and an inferior flavor. In baking apples, however, use a moderate to hot oven (350-400° F), as too hot an oven may cause them to break and lose their shape.
6. Add a little salt to apples to bring out their flavor.
7. The amount of sugar to add to apples will depend upon taste and the variety. One to 2 tablespoons per apple will usually bring out the apple flavor without covering it up. The fruit will be more translucent, it will take less sugar and it is more easily cooked without scorching if the sugar is added after the fruit has been cooked tender.
8. If spice is desired, it should be used only in small amounts—to blend with the apple flavor and not cover it. Whole spice is usually preferred to ground spice and it should be added at the beginning of the cooking period. If ground spice is used it should be added near the end of the cooking period to prevent color changes.
9. Cook apples only until tender. Over-cooking causes losses in flavor, texture, color, and nutritive value.
10. Baking apples cooked on top of the stove in a heavy pan with a well-fitted lid will be done in about half the time it takes to bake them in the oven and many people think their general appearance and flavor is as good as if they were baked in the oven.
11. Serve cooked apples when they are very hot or very cold as no food tastes or looks its best when lukewarm.

APPLE RECIPES FOR ALL OCCASIONS

In order to enjoy apples to the utmost and to realize the fullest possible benefits from their nutritional and health giving properties, it is necessary to serve them frequently and in a great variety

of ways. With this in mind the following recipes* are suggested for breakfast, dinner, supper, the school lunch, and for refreshments between meals.

The varieties suggested for each recipe are those listed as **excellent** for such use in Table 3 on page 7. Sometimes, however, there is not a great difference between those listed as **good** and those listed as **excellent**.

Apples for Breakfast

Apples may be served for breakfast as apple sauce, as baked apple, or as a juice in the fruit course or served with ham, sausage, or bacon for the main course. They may be a part of the bread or served as preserves, jelly, honey or butter.

GLAZED APPLES

Varieties Suggested: Jonathan, Stayman Winesap, Rome Beauty, or Black Twig.

Core and slit skin at right angles to the core around middle of apple and place in a sauce pan. Put about 3 teaspoons sugar in the core openings of each apple. Add $\frac{1}{4}$ cup water for each apple. Cover and place over low fire. Cook until tender (usually 7 to 15 minutes), taking care not to over-cook, as the apples cook to a mush quickly. Remove cover during last minutes of cooking and turn apples once during this period to produce a glaze.

BAKED APPLES

Varieties suggested: Stayman Winesap, Jonathan, Rome Beauty, or Black Twig.

Prepare as for glazing and bake in a hot oven (400°F.) for 30 to 45 minutes, depending upon the variety of apple. If baking apples with an oven dinner, lower temperatures may be used.

Serve baked apples hot or cold, with or without cream. Apples may be stuffed before baking with raisins, nuts, honey or combinations of these.

APPLE SAUCE

Varieties suggested: Transparent, Duchess, Wealthy, Golden Delicious, Stayman Winesap, or Black Twig.

For each 6 medium-sized tart apples, add:
 6 to 8 tablespoons water
 6 to 8 tablespoons sugar
 Pinch of salt

Wash and remove the flower end of apples. Slice in $\frac{1}{8}$ inch slices. Place in a sauce pan and add the boiling water. More water may be needed later for certain varieties, but most varieties can be cooked with very little if a tightly covered kettle is used. Cover with a well fitted lid and cook only until transparent and somewhat broken. Strain, add the sugar, and heat only long enough to dissolve the sugar.

If the apples are not well flavored, add lemon juice, cinnamon or whole cloves. Nutmeg should be used only when the apple sauce is to be served right away as it may make the flavor bitter by standing.

For variety, brown sugar may be used in place of white sugar, or one may add the juice of two oranges and their finely shredded peels that have been previously cooked in salted water and drained.

*Grateful acknowledgment is made for material adapted from the following publications: U. S. Leaflet, Apple Recipes; Minnesota Bulletin 185; Ohio Bulletin 202; and U. S. Department of Agriculture Farmers' Bulletin 1800.

Apples for Dinner

Apples may be used in the first course, the main course, the salad or the dessert of any well planned dinner. Apple juice, cider, or raw cooked apples alone or in a combination with other fruits make delicious fruit cocktails. Apple sauce, apple rings, baked apples or spiced apples go well with practically all meats. Apples combined well with such vegetables as squash, carrots and sweet potatoes. Raw diced apples may be used to extend and to lighten any meat, vegetable or fruit salad. A list of America's favorite dinner desserts would include baked apples, apple pie, apple dumplings and apple sauce cake. For a heavy or a light dinner there is always the possibility of having just the right apple dessert.

APPLE STUFFING

Varieties suggested: Transparent, Duchess, Wealthy, Golden Delicious, Stayman Winesap or Black Twig.

5 tart apples, diced	$\frac{1}{4}$ cup chopped parsley
$\frac{1}{4}$ cup diced salt pork	$\frac{1}{2}$ cup sugar
$\frac{1}{2}$ cup chopped celery	2 cups fine dry bread crumbs
$\frac{1}{2}$ cup chopped onion	

Fry the salt pork until crisp, and remove the pieces from the skillet. Cook the celery, onion, and parsley in the fat for a few minutes and remove them. Put the apples into the skillet, sprinkle with the sugar, cover, and cook until tender, then remove the lid and continue to cook until the juice evaporates and the pieces of apples are candied. Add the other ingredients to the apples. Pile the hot stuffing between pairs of spareribs, skewer them together, and bake. Or use in stuffing boned shoulder of fresh pork or roast.

APPLES STUFFED WITH SAUSAGES

Varieties suggested: Jonathan, Stayman Winesap, Rome Beauty, or Black Twig.

6 medium-sized apples	4 tablespoons sugar
$\frac{1}{2}$ lb. sausage meat or	Nutmeg
6 small sausages	$\frac{1}{2}$ cup water

Core apples and slit them around middle. Stuff with sausages. Arrange in baking dish. Sprinkle apples with sugar and spice. Cover bottom of baking dish with water. Bake in moderate oven (350° F.) $\frac{3}{4}$ hour or until well cooked.

SCALLOPED APPLES AND SWEET POTATOES

Varieties suggested: Transparent, Duchess, Wealthy, Jonathan, Gano, or Stayman Winesap.

4 medium-sized apples, pared	$\frac{1}{2}$ cup sugar
and cored	$\frac{1}{2}$ teaspoon salt
3 medium-sized sweet	3 tablespoons butter or other
potatoes	fat

Cook the sweet potatoes in boiling water until tender. Cool and skin. Slice the sweet potatoes and apples and place in alternate layers in a greased baking dish. Sprinkle each layer with sugar and salt, and dot with butter. Add a little water and bake for 30 to 45 minutes, or until the apples are soft and the top layer is brown. Serve in the baking dish.

FRIED APPLES AND CARROTS

Varieties suggested: Transparent, Duchess, Wealthy, Jonathan, Gano, or Stayman Winesap.

6 tart apples	1 tablespoon sugar
6 medium-sized carrots	$\frac{1}{4}$ teaspoon salt
2 tablespoons fat	

Pare the apples or leave the skins on, as preferred, core, and slice about a fourth of an inch thick. Scrape or peel the carrots and cut lengthwise into thin slices. Place a single layer of the apples and the carrots in a large skillet with the fat, cover tightly, and cook until well browned, turn, and brown on the other side. Just before the cooking is finished, sprinkle with the sugar and salt. Serve on a hot platter in layers with the apples on top.

SCALLOPED APPLES

Varieties suggested: *Transparent, Duchess, Wealthy, Jonathan, Gano, or Stayman Winesap.*

Pare, core, and slice tart firm apples. Place a layer of the sliced apples in a baking dish, sprinkle with sugar, and dot with butter. Put in another layer of apples and press down, add more seasoning, and keep on until the dish is heaping full. Cover and cook slowly for about 1 hour in a moderate oven. Then remove the cover, spread buttered bread crumbs over the top, and return to the oven to brown the crumbs. The apples will be in whole pieces, almost transparent, and some kinds will be pink in color. Scalloped apples are especially good served hot with the main course of a meal.

APPLE FRITTERS

Varieties suggested: *Transparent, Duchess, Wealthy, Jonathan, Gano, or Stayman Winesap.*

3 medium-sized tart apples	$\frac{1}{2}$ cup milk
1 cup sifted flour	1 egg, well beaten
2 teaspoons baking powder	Fat for frying
$\frac{1}{4}$ teaspoon salt	Powdered sugar

Pare, core, and cut the apples in crosswise slices about one-quarter inch thick. Sift the dry ingredients. Add the milk to the well beaten egg, then pour slowly into the dry mixture, and stir until smooth. Heat well flavored fat to about 375° F., or until an inch cube of bread will brown in 1 minute. Dip the apple rings into the batter, drain, and put slowly into the hot fat without spattering. Cook from 3 to 5 minutes or until the apples are tender and the fritter a golden brown. Drain on absorbent paper, sprinkle with powdered sugar and cinnamon, and serve hot.

APPLE AND CABBAGE SALAD

Varieties suggested: *Jonathan, Golden Delicious, Delicious, Black Twig, Stayman Winesap, or Winesap.*

4 firm apples	Cream dressing
1 small head crisp cabbage	Grated horseradish

Wash and dice apples. Combine apples with finely shredded cabbage. Mix with salad dressing. Sour cream dressing, seasoned with horseradish, is a good dressing for this salad. Serve at once from bowl or on salad greens.

WALDORF SALAD

4 firm apples	1 head lettuce or other salad greens
1 cup chopped crisp celery	
$\frac{1}{4}$ cup broken nuts (hickory nuts, pecans, almonds or walnuts)	Mayonnaise or cream dressing

Wash and dice apples and combine with the crisp celery and nuts. Add enough dressing to moisten. Serve at once on crisp lettuce or other salad greens. If using walnuts, it is better to sprinkle the nuts on top of the salad just before serving, as the nut skins tend to darken the fruit.

APPLE, WATERCRESS, AND CHEESE SALAD

2 cups diced, firm apples	Shredded leaf lettuce
1 cup watercress	4 stuffed olives
$\frac{1}{4}$ lbs. cheese	French or mayonnaise dressing

Clean, wash, and remove stems from watercress. Combine with apples. Line a salad bowl with shredded lettuce. Place apple and cress mixture on

lettuce. Press cheese through a strainer over the top. Garnish with olives cut in 3 rings each. Serve at table with French dressing.

FRUIT SALAD

Diced apples, especially with the red skins left on, are excellent in many kinds of fruit salads. The apples give the crisp texture often needed, particularly with canned fruits.

CINNAMON APPLES

Varieties suggested: Jonathan, Stayman Winesap, Rome Beauty, or Black Twig.

6 firm tart apples	$\frac{1}{2}$ to 1 cup red hots or cin-
3 cups boiling water	namon candies—enough
$1\frac{1}{2}$ cup granulated sugar.	to make the apples rose
	color

Pare and core apples, leaving whole. Make sirup of candies, water and sugar. Cook apples slowly in sirup until transparent but not soft. Chill, place on lettuce leaf, fill the center with one of the following combinations and serve with mayonnaise or boiled salad dressing:

- (1) Broken nut meats and cream cheese.
- (2) Nut meats, drained crushed pineapple and chopped dates.
- (3) Nut meats, cottage cheese and thick sour or sweet cream.
- (4) Nut meats and chopped raisins.
- (5) Cheese and grated cocoanut.
- (6) Form cheese in balls, roll in ground nuts and place beside the apples.

APPLE PIE (DEEP 9-INCH PLATE)

Varieties suggested: Transparent, Duchess, Wealthy, Jonathan, Ben Davis, Gano, Stayman Winesap, or Black Twig.

<i>Crust</i>	<i>Filling</i>
2 cups soft wheat flour	5-8 tart apples (6 cups apple
$\frac{3}{8}$ cup lard	slices)
1 teaspoon salt	$\frac{1}{2}$ to $\frac{3}{4}$ cup sugar
4-6 tablespoons cold water	Spice to suit taste
	$\frac{1}{2}$ teaspoon salt

Cut shortening into flour until the pieces are about the size of small peas. Sprinkle cold water over the surface of the flour mixture and mix quickly and evenly through the flour with a fork until the dough just holds together. Use as little water as possible and handle with a light touch. Avoid overmixing. Divide dough into two parts. Roll dough on a lightly floured board or pastry canvas until it is slightly larger than the pie plate. Lift carefully into the pie plate. Peel and slice apples with the sugar and spices and place in the lined pie plate. Roll upper crust a little larger than the lower crust and prick or slit in several places to allow for the escape of steam. Fold and place over the apples. Moisten upper surface of lower crust along edge of tin with milk or water and press upper and lower crusts firmly together so that there is a thick upstanding ridge around the rim of the plate. Bake in a hot oven (425° F.) about 40 minutes.

A good apple pie is a golden brown, top and bottom. Both crusts are flaky and not soggy. The pieces of apples should have a real apple flavor, slightly tart. They should be clear and translucent, juicy, soft, yet hold their shape and lie together with spaces between slices.

APPLE PIE WITH MELTED CHEESE

After an apple pie is baked, cover the top with American cheese cut into thin slices or grated, and put in a slow to moderate oven (300° to 325° F.) until the cheese is melted. Serve at once while the cheese is warm. Either a freshly baked or a cold pie may be prepared in this way.

APPLE SCOTCH PIE

1 cup brown sugar	2 to 3 teaspoons vinegar
$\frac{1}{4}$ cup flour	2 tablespoons butter
$\frac{1}{4}$ teaspoon salt	1 teaspoon vanilla
$\frac{3}{4}$ cup water	3 to 5 apples

Mix the dry ingredients. Add water and cook until thick. Add vinegar, butter and vanilla. Cool. Place sliced apples in a 9-inch pie plate lined with pastry. Pour sirup over the apples and cover with the top crust. Bake in a hot oven (400-450°) until apples are tender, and crust is golden brown. This takes about 40 minutes.

APPLE DUMPLINGS

Varieties suggested: Transparent, Duchess, Wealthy, Jonathan, Ben Davis, Gano, Stayman Winesap, or Black Twig.

Roll out pastry dough in rounds about the size of fruit plates. In the center of each, place a pared and cored apple, whole or in pieces. Sprinkle the apples with a mixture of sugar, cinnamon, and a few grains of salt, and dot with butter. Lift the edges of the dough and press together. Bake in greased muffin tins or in a baking dish or pan with a small amount of water, in a moderate oven (350°-375°F.) 30-40 minutes. Serve hot with hard sauce, cream or a fruit sauce.

ROLLED APPLE DUMPLINGS

2 cups soft wheat flour	$\frac{3}{4}$ cup milk
2 teaspoons baking powders	1 tablespoon butter, melted
1 teaspoon salt	1 teaspoon cinnamon
2 tablespoons butter	2 tablespoons brown sugar
2 tablespoons lard	3 large tart apples

Sauce:

1 cup white sugar	1 tablespoon butter
1 cup brown sugar	1 cup water
$\frac{1}{2}$ teaspoon salt	$\frac{1}{2}$ lemon sliced thin

Sift together flour, baking powder, and salt. Mix lard in dry ingredients to a meal consistency. Add milk all at once and stir with fork as for baking powder biscuits. Roll to $\frac{1}{8}$ -inch thickness. Brush with melted butter and sprinkle with cinnamon and brown sugar and spread with diced or shredded apples. Roll as for jelly roll, cut, place in a buttered pan cut side up. Make a sauce by combining the sauce ingredients and cooking, omitting the lemon and butter until the sirup is made. Pour the sauce over the top of dumplings. Bake in a hot oven (450° F.) for 25 minutes.

DUTCH APPLE CAKE

Varieties suggested: Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

<i>Part I</i>	<i>Part II</i>
2 cups soft wheat flour	4 tablespoons butter
2 teaspoons baking powder	$\frac{3}{4}$ cup brown sugar firmly packed
2 tablespoons sugar	1 teaspoon cinnamon
$\frac{1}{2}$ teaspoon salt	1 tablespoon top milk
$\frac{1}{4}$ cup lard	2 cups firm apples, sliced thin
1 egg, well beaten	
$\frac{3}{4}$ cup milk	

Sift flour with baking powder, sugar and salt. Cut in shortening until mixture is as fine as corn meal. Combine beaten egg and milk and add to flour mixture making a soft dough. Melt the butter, add brown sugar, cinnamon and milk of Part II and mix well. Pour into 8 x 8 inch greased baking dish or pan. Press apple slices into mixture in circles. Add Part I spreading dough over apples. Bake in moderate oven (350°F.) 50 to 60 minutes. Serve hot, upside down, with hard sauce or whipped cream. Serves 8 to 10 people.

APPLESAUCE CAKE

$\frac{1}{2}$ cup fat	$2\frac{1}{2}$ cups sifted flour
1 cup sugar	$\frac{1}{2}$ teaspoon cloves
1 cup unsweetened, thick smooth applesauce	$\frac{1}{2}$ teaspoon cinnamon
1 teaspoon soda	$\frac{1}{4}$ teaspoon nutmeg
1 cup chopped raisins	$\frac{1}{2}$ teaspoon salt

Cream the fat and sugar together, add the applesauce. Mix the raisins with one-half cup of the flour, sift the rest with the spices, soda, and salt, and add the dry ingredients to the liquid mixture. Beat well, pour into a greased pan, and bake in a slow to moderate oven (300° to 325° F.) for about 1 hour.

APPLE MALLOW

30 marshmallows	2 tablespoons orange juice
$\frac{1}{2}$ cup hot water	2 cups applesauce
3 tablespoons lemon juice	1 cup whipped cream

Dissolve marshmallows in water, stirring constantly. Add strained lemon and orange juice and applesauce. Cool and add whipped cream. Freeze in mechanical freezer or pack in mold and freeze in 3 parts of ice to 1 part of salt in a container.

Apples for Supper

Apples may be used in the main dish of a simple supper or a rather elaborate luncheon. Baked or cinnamon apples stuffed with cheese, or diced raw apples with nuts and celery, cabbage, or turnips, are desirable supper salads. Tart apples may well be used in making a rice, tapioca or bread pudding. Apple Crisp or Apple Brown Betty are among the favorite supper desserts of many Missouri families.

FRIED APPLES AND BACON

Varieties suggested: Transparent, Duchess, Wealthy, Jonathan, Gano, Ben Davis, or Stayman Winesap.

12 firm, tart apples	$\frac{1}{4}$ cup sugar
$\frac{1}{2}$ lb. bacon	

Wash, core, and cut apples in eighths. Cook bacon in a heavy skillet until crisp. Remove and keep in warm place on absorbent paper. Remove all but $\frac{1}{4}$ cup of fat. Place apples in skillet, cover and cook until the apples are tender. Sprinkle sugar over apples, turn apples carefully and let brown until transparent. Serve on hot platter with bacon. Thin slices of ham, salt pork, or sausage may be used instead of bacon.

GLAZED APPLE RINGS

Varieties suggested: Jonathan, Stayman Winesap, Rome Beauty, or Black Twig.

4 large tart apples	1 cup sugar
2 tablespoons butter	$\frac{1}{8}$ teaspoon salt
1 cup water	

Combine water, sugar, salt, cook for 10 minutes. Wash, core, pare, apples and cut crosswise in $\frac{1}{2}$ to $\frac{3}{4}$ inch slices. Place apple rings in a single layer in a buttered shallow pan. Add the hot sirup and butter, cover, and cook in moderate oven (350° F.) until tender. Uncover and continue to cook until sirup is thick, turning apples occasionally. Serve hot with meat or chill and serve with cold meat or cheese.

APPLE WAFFLES

Varieties suggested: Transparent, Duchess, Wealthy, Jonathan, Ben Davis, Gano, or Stayman Winesap.

1 $\frac{3}{4}$ cups flour	1 cup milk
2 $\frac{1}{2}$ teaspoons baking powder	4-6 tablespoons melted fat
$\frac{1}{2}$ teaspoon salt	1 cup finely chopped or
1 tablespoon sugar	shredded raw apple
2 egg yolks	2 egg whites

Sift dry ingredients together. To warm milk, add melted fat and beaten egg yolk. Combine liquid with dry ingredients and add raw apples and blend well. Fold in beaten egg whites. Bake on hot waffle iron for 3 to 4 minutes, or until a golden brown and crisp. Serve immediately.

APPLE AND BACON SANDWICHES

Toast or biscuit	Thick apple sauce
Bacon	

Cover a slice of toasted bread or biscuit with a thick layer of heavy apple sauce. Place two slices of bacon on top of the sauce and put in a hot oven until bacon is crisp. Serve at once.

CIDER GELATIN SALAD

2 $\frac{1}{2}$ cups clear cider	$\frac{1}{4}$ teaspoon salt
2 tablespoons gelatin	1 tablespoon finely chopped
1 cup chopped apples	parsley or green pepper
$\frac{1}{2}$ cup finely chopped celery	$\frac{1}{4}$ cup chopped nuts

Soak the gelatin in one-half cup of the cold cider. Heat the remainder of the cider near the boiling point, pour into the gelatin, stir until dissolved, strain, and chill. When the gelatin mixture begins to set, stir in the other ingredients, and pour into individual molds, which have been rinsed in cold water. When set turn out on lettuce or cress and serve with French or mayonnaise dressing. Crackers sprinkled with grated cheese and toasted go especially well with apple salads.

APPLE BROWN BETTY

Varieties suggested: Transparent, Wealthy, Jonathan, Duchess, Ben Davis, Gano, Stayman Winesap, or Black Twig.

2 quarts diced tart apples	1 $\frac{1}{4}$ cups sugar
1 quart bread crumbs (oven	1 teaspoon cinnamon
toasted until crisp and	$\frac{1}{4}$ teaspoon salt
light brown)	$\frac{1}{4}$ cup melted butter

In a greased baking dish place alternate layers of crumbs, and of apples. Sprinkle sugar, cinnamon, and salt over the apples. Pour the melted butter over the top layer of crumbs, cover, and bake for 30 to 45 minutes, or until the apples are soft. Toward the last remove the cover and allow the top to brown. Serve hot, with plain or whipped cream, or hard sauce.

APPLE TAPIOCA

Varieties suggested: Transparent, Wealthy, Jonathan, Duchess, Ben Davis, Gano, Stayman Winesap, or Black Twig.

3 pints sliced tart apples	$\frac{1}{2}$ teaspoon cinnamon
$\frac{1}{2}$ cup quick-cooking tapioca	$\frac{1}{2}$ teaspoon salt
2 cups boiling water	Juice of 1 lemon
$\frac{1}{2}$ cup sugar	

Add the boiling water to the tapioca and cook in a double boiler for 15 minutes, or until the tapioca is clear. Add the sugar, cinnamon, salt, and lemon juice. Arrange the apples in a greased, shallow baking dish and pour the tapioca mixture over them. Bake in a moderate oven until the apples are tender and the top is lightly browned. Serve hot or cold with plain or whipped cream.

APPLE COMPOTE

Varieties suggested: Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

Select firm apples, pare, and slice, or core and leave whole. Cook slowly until tender in a sirup made of equal parts sugar and water with a few grains of salt added. Chill and serve garnished with mint jelly, or grated cocoanut, or chopped nuts.

APPLE STRUDEL

Transparent, Duchess, Wealthy, Jonathan, Ben Davis, Gano, Stayman Winesap, or Black Twig.

2 cups flour	Melted butter
$\frac{1}{2}$ cup butter	1 to 1 $\frac{1}{2}$ quarts tart apples
1 egg	$\frac{3}{4}$ cups sugar
$\frac{1}{2}$ to $\frac{3}{4}$ cups water	$\frac{1}{4}$ teaspoon cinnamon

Combine flour and butter. Work in egg and enough water to make a dough that will come out of the bowl clean. Cover and let stand 30 minutes. Roll dough on well floured cloth or board. Stretch so it becomes thin as paper but does not break. Brush with melted butter. Wash, pare, core, and chop tart apples. Mix apples with sugar and spice, and spread on dough. Roll the dough like a jelly roll, by lifting edges of cloth. Press edges and ends together. Place in a buttered pan and sprinkle with sugar. Bake at 400°F. until nicely browned and apples are tender (about 45 minutes). Powder with confectioners sugar and serve warm or cold.

APPLE CRISP

Transparent, Duchess, Wealthy, Jonathan, Ben Davis, Gano, Stayman Winesap, or Black Twig.

1 cup sugar	$\frac{1}{2}$ cup water
$\frac{1}{2}$ cup butter	$\frac{1}{2}$ teaspoon cinnamon
$\frac{3}{4}$ cups flour	8 medium sized tart apples

Mix the butter, sugar, and flour with the fingertips. Wash, pare, and slice apples and place in buttered baking dish. Sprinkle apples with cinnamon and add the water. Spread flour mixture over the apples. Bake in uncovered pan in moderate oven (350° F.) for 30 minutes. Serve plain or with cream.

Apples for the School Lunch

No fruit lends itself better to the packed lunch than a firm, tart, colorful raw apple. Applesauce, baked, glazed, cinnamon, or other cooked apples are also good in school lunches.

CARAMEL APPLES

Grimes Golden, Jonathan, Golden Delicious, Delicious.

Cook one cup white sugar, 1 cup brown sugar, $\frac{1}{2}$ cup water and $\frac{1}{2}$ cup vinegar together until a small amount dropped in cold water will give a cracking sound when pressed together. Stick wooden skewers in crisp, medium sized apples and dip each in the hot syrup. Drain on heavy waxed paper.

APPLE MARMALADE

Pare the apples, put through a meat chopper, and used 1 $\frac{1}{2}$ lbs. of sugar to 3 lbs. of fruit. Cook slowly until stiff enough not to run when placed on a cold saucer as a test. Spices, as cinnamon, cloves, ginger, may be added to suit taste. A can of grated pineapple added to the apples gives a delicious flavor. Pour into hot glasses or jars and seal.

APPLESAUCE COOKIES

$\frac{1}{4}$ cup shortening	$\frac{1}{2}$ teaspoon salt
1 cup sugar	$\frac{1}{2}$ teaspoon soda
1 egg	1 teaspoon baking powder
2 cups flour	1 cup thick unsweetened
$\frac{1}{2}$ teaspoon cinnamon	apple sauce
$\frac{1}{4}$ teaspoon cloves	

Cream shortening, add sugar gradually, stirring continuously. Whip in egg. Mix dry ingredients thoroughly and add alternately with the apple-sauce—adding flour first and last. Drop from a spoon on a buttered cookie sheet about 2 inches apart. Bake until nicely browned in a 350° F. oven. Remove the cookies with a spatula before they cool. One-half cup raisins or nut meats, or a mixture of the two, may be added.

Apples for Between Meals

For the mid-morning, the afternoon, the after school or the after supper snack, apples seem just right. Try some of the following recipes:

CANDIED APPLES

Grimes Golden, Jonathan, Golden Delicious, or Delicious.

6 medium-size apples	$\frac{1}{2}$ cup water
1 cup brown sugar	1 tablespoon butter
$\frac{1}{2}$ cup granulated sugar	1 teaspoon vanilla extract
$\frac{1}{2}$ cup light corn sirup	

Stick wooden skewers into stem end of apples. Place sugars, corn sirup, water, and butter in saucepan and stir over low heat until sugar is dissolved. Boil to medium-crack stage (272°) without stirring; remove from heat and add vanilla. Dip apples one at a time into the sirup. Place upright on greased pan until cool or roll in finely chopped peanuts or other nut meats.

APPLETS

4 cups tart apple pulp (Jonathan or Winesap)	1 cup cold water
4 cups sugar	3 cups nut meats chopped
$\frac{1}{2}$ teaspoon salt	$\frac{1}{4}$ teaspoon rose water, or
4 tablespoons gelatin	$\frac{1}{8}$ teaspoon orange extract

To the apple pulp, add the sugar and salt and cook until very thick so that when dropped from a spoon it retains its shape. Remove from the stove and add gelatin that has been soaked in cold water and mix well. Add nut meats and rose water or orange extract when mixture is slightly cool. Pour into buttered pans have fruit mixture about $\frac{3}{4}$ -inch thick. When firm cut into pieces and roll in sugar.

CHOCOLATE-COATED CANDIED APPLES

Grimes Golden, Jonathan, Golden Delicious, or Delicious.

3 firm apples	$\frac{1}{2}$ cup water
1 cup sugar	$\frac{1}{4}$ teaspoon salt
1 cup honey	Chocolate for dipping

Boil together the sugar, honey, water, and salt for a few minutes. Wash, core, and pare the apples, cut into half-moon shaped pieces about half an inch thick, drop into the sirup, and cook rapidly until the apples are transparent and practically all the sirup is absorbed. Lift onto waxed paper to dry. Break up cake chocolate made especially for dipping candies, and put into a shallow dish over hot water. As soon as the chocolate begins to soften, remove from the hot water, and stir the chocolate until it is all melted. Dip the pieces of apple into the melted chocolate until well coated, and place on waxed paper to dry. Pack the apple candies in layers between sheets of waxed paper.

APPLE MELBA

Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

4 tart apples	1 pint vanilla ice cream
1 cup water	$\frac{1}{2}$ cup raspberry sauce
1 cup sugar	Lemon peel, few thin slices
$\frac{1}{2}$ lemon	

Combine sugar and water and bring to a boil. Pare and core tart apples. Cook apples, juice of $\frac{1}{2}$ lemon, and few slices of lemon peel in sirup until tender. Carefully lift out and place in shallow pan. Pour sirup around apples, sprinkle granulated sugar over the tops and glaze in a very hot

oven or under broiler. Cool and remove to individual serving dishes. Fill cavity with vanilla ice cream, pour over raspberry sauce. Sweetened whipped cream may be added on top.

TOPPING FOR GINGERBREAD

Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

2 or 3 apples	$\frac{1}{2}$ cup sorghum
2 tablespoons butter	$\frac{1}{4}$ cup raisins

Blend butter and sorghum in bottom of pan. Slice over this unpeeled apples and sprinkle with raisins. Pour in gingerbread batter and bake.

HOT SPICED CIDER

2 quarts cider	4 small sticks cinnamon
1 teaspoon whole cloves	6 whole allspice

Bring cider to boil. Add spices tied in a bag. Boil cider and spices 3 minutes. Cool and remove spices. When ready to serve bring to boil and serve at once, Garnish with ring of unpeeled red apple stuck with whole cloves. Makes 8 cups. Left over spiced cider may be reheated and served. The flavor is a little milder.

PROCESSED APPLES

There are a great variety of apple products which may be made in season and stored for later use. The following are some ways of extending the use of good apples beyond their best season.

CANNING APPLES

Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

Pare the apples and cut into pieces of the size desired. If the pieces must stand, to prevent darkening place them in water containing two tablespoons salt and two tablespoons vinegar per gallon of water. To prevent excessive shrinking precook by boiling 5 minutes in a light sirup (1 to 1½ cups sugar to 1 quart of water). Pack hot and cover with boiling sirup up to ½ inch of top of jars. Process pint or quart jars for 15 minutes in boiling water bath (212°F.).

Apples may be baked or glazed as for table use, packed hot into containers, covered with hot sirup, and processed for 5 minutes in a boiling water bath (212°F.). The apples may be made into sauce, packed boiling hot and processed 5 minutes in the boiling water bath (212°F.).

CANNING APPLES FOR PIES

Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

1 gallon sliced apples	2 cups sugar
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Peel and core firm, tart apples. Slice one-eighth inch thick. Pack apples in a crock or other large container, placing a layer of apples and then a layer of sugar. Repeat until all the apples are used. Cover with a plate and press down. Allow to stand over night in a cool place. Pack the apples into cans firmly tight to obtain a solid pack. Add enough juice to fill the jar. Process 20 minutes in a boiling water bath (212°F.). These apples make excellent pies. The extra juice may be canned by pouring into containers and processing 20 minutes. The canned juice may be used for beverages, sauces, in cocktails, or desserts.

APPLE CHUTNEY

Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

3 qts. sliced apples	1 pint tarragon vinegar
3 lemons sliced and seeded	2 lbs. seedless raisins
2 chili peppers—seeds removed	1 tablespoon ground ginger
1 qt. brown sugar	1 teaspoon paprika
1 qt. cider vinegar	1 teaspoon salt
1 qt. dates, stoned and chopped	1 onion chopped
	2 cloves
	garlic

Chop apples with lemons and mix all ingredients. Boil gently until apples are soft. Pack hot and process 30 minutes in water bath.

PICKLED APPLES

Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

1 lb. apples, cut in eighths	Cinnamon stick
$\frac{2}{3}$ lb. sugar	Cloves
$\frac{2}{3}$ cup vinegar	3 slices lemon
1 cup water	

Boil the sugar, the vinegar, the water, and the spices 5 minutes. Add the apples, and cook the mixture slowly until the apples are clear and tender. Pack hot in sterilized jars.

Crabapples may be prepared in the same way. They may be pared or not, as preferred. The blossom end should be removed, but the core and stem left on. Sweet apples are excellent for pickling, but they should be cooked until slightly tender before they are added to the pickling solution.

CRABAPPLE PICKLES

3 pounds crabapples	$1\frac{1}{2}$ teaspoons whole black pepper
$1\frac{1}{2}$ teaspoons whole cloves	$1\frac{1}{2}$ cups vinegar
$1\frac{1}{2}$ teaspoons allspice	$\frac{1}{2}$ cup water
$1\frac{1}{2}$ teaspoons ginger root, or stick cinnamon	1 cup sugar

Wipe apples, pierce with fork, steam until fairly soft. Place sugar, vinegar, and apples in preserving kettle. Add spices tied loosely in cheese-cloth bag. Bring gradually to boiling point and simmer 20 minutes. Place in hot sterilized jars and fill with hot sirup. Seal at once. Care must be taken not to overcook apples. Honey may be substituted for half or all of the sugar.

GINGER APPLES

Jonathan, Stayman Winesap, Rome Beauty, Black Twig, Ben Davis, or Gano.

Any apple that holds its shape well in cooking is good for ginger apples. Ben Davis apples are excellent for this purpose. Pare the apples, and cut them in quarters. Cook them in boiling water until they are tender. Make a sirup as for preserved apples and pears, adding 2 tablespoons of preserved ginger. Add the apples, simmer them until the mixture is thick and clear, and seal it in sterilized jars.

APPLE JELLY

Choose a mixture of ripe and underripe apples. Wash and cut apples in *small* uniform pieces, allowing the cores and peel to remain. Weigh the apples, place in a flat bottomed kettle and add 1 cup water to each pound of apples. Boil 20 to 25 minutes, according to the firmness of fruit. Stir only to prevent sticking. Pour into jelly bag and allow to drip. To make second extraction, turn the pomace into kettle immediately, barely cover with water, and simmer for 15 to 20 minutes, stirring frequently. Extract juice as before. Combine first and second extractions and clarify by straining through a fresh jelly bag that has been wrung from hot water.

To obtain best jelly do not cook more than six to eight cups at one time. Measure the juice and add $\frac{3}{4}$ cup sugar for each cup of apple juice. Add sugar to juice and stir until dissolved. Boil rapidly in large pan until jelly stage is reached. Do not stir. To test for jelly, dip a tablespoon into boiling sirup and lift spoon up, hold a few seconds over pan, then let sirup run off the side of spoon. When the sirup no longer runs off the spoon in a steady stream but separates into two distinct lines of drops, which "sheet" together, stop cooking. Remove scum. Allow to stand while arranging hot jelly glasses which have been boiled 15 minutes. Pour into glasses. When jelly is firm and well set, seal by covering with melted paraffin.

Variation: for mint jelly add green vegetable coloring and 2 drops oil of peppermint before filling glasses.

Good apple jelly is translucent, bright and a light or attractive color. It will stand when removed from the container, but quivers when touched. It is tender, cuts easily with a spoon and yet will hold sharp edges. It is not sticky because of a lack of acid, gummy from overcooking or too little sugar or sirupy from too much sugar. Good jelly has the characteristic apple flavor. More pectin is extracted when the fruit is cut in small pieces.

When the raw apples are put through a food chopper there is more pectin but the color of the juice is poor and the jelly may be cloudy.

APPLE MINT JELLY.

1 cup apple juice	1 cup mint leaves (packed
$\frac{3}{4}$ cup sugar	tightly)
	1 cup boiling water

Pour boiling water over mint leaves and allow to steep one hour. Press the juice from the leaves and add 2 tablespoons of this extract to apple juice and sugar. Let boil until the sirup jellies. If desired, tint with green vegetable coloring. Pour into hot jelly glasses.

HOME-MADE APPLE PECTIN EXTRACT

Select firm apples such as the Ben Davis and Black Twig. Summer apples do not have sufficient pectin for such use. Sound culls or apples with surface blemishes are usable. Wash the apples and cut out the imperfect spots and blossom end, slice thin, retaining skins and cores.

For each 4 pounds of prepared apples use $4\frac{1}{2}$ pints of water for the first extraction. Place the apples and the water in a large pan so as to allow rapid boiling. Cover and boil 20 minutes. Strain through a flannel jelly bag or four thicknesses of cheesecloth until the juice stops dripping. Repeat the process adding a little lemon juice to the water (may increase the amount of pectin obtained). The two extractions should amount to 3 quarts.

Boil this juice in a pan large enough so that the liquid will be only 2 inches deep. Boil rapidly until the juice is reduced to a fourth of its original volume. This usually requires from 30 to 40 minutes. There should be $1\frac{1}{2}$ pints of the concentrated apple juice of pectin extract.

If the extract is not to be used at once, pour immediately into hot sterilized half-pint jars, partially seal, process on a rack in a boiling-water bath for 20 minutes, complete the seal, and store in a cool, dry place. Once the canned extract is opened, it must be used immediately, as it will not keep.

STRAWBERRY JELLY WITH ADDED APPLE PECTIN

The following is a typical recipe using home-made apple pectin extract with fruit juices that lack this substance naturally.

2 pounds strawberries	$\frac{3}{8}$ cup apple pectin extract
2 tablespoons water	2 cups sugar

Wash the berries thoroughly and remove the caps. Add the water to the berries, boil rapidly for a few minutes until the berries are soft, and strain through a jelly bag. (This yields about 2 cups of juice.) Mix the 2 cups of strawberry juice with the sugar and the pectin extract. If the berries are especially lacking in acid, add 1 teaspoon of lemon juice to

each cup of the juice. Boil rapidly until the jelly stage is reached, skim and pour into hot sterilized glasses.

CANNING JUICE FOR LATER JELLY MAKING

Apple juice may be canned if inconvenient to make it into jelly when first extracted. Jelly from juice stored 6 months may have as good texture as that made from the fresh juice, though the color and flavor may not be quite so good, especially in the case of the red fruits.

When such canning is desirable, fill hot sterilized glass jars with the juice, without reheating it. Partially seal. Place on a rack in a water bath and keep simmering temperature 185°F. for 20 minutes. Complete the seal at once and store the jars in a cool, dry place protected from light.

CIDER APPLE BUTTER

Varieties suggested: Grimes Golden, Stayman Winesap, Black Twig, Ben Davis, Gano, or Jonathan.

5 cups apple pulp	2 tablespoons lemon juice
1 cup cider	1 teaspoon cinnamon
$\frac{1}{4}$ teaspoon salt	$2\frac{1}{2}$ cups sugar

Place all ingredients in preserving kettle and simmer until thick and clear and no rim of liquid separates around the edge of the butter, or about 30 minutes, stirring often. Pour into hot sterilized glasses and seal at once. This amount makes about 2 pints.

Some may wish to cook the butter longer but long cooking breaks down the tannins, making the butter dark brown. It drives off the substances that give good flavor and it destroys the jellying power of the pectin.

Good apple butter is a thick homogeneous mass of fruit pulp showing no separation of liquid, yet soft enough to spread. Its flavor should be the characteristic flavor of tart, firm apples. It should not be too sweet, spicy, or have an overcooked flavor, and its color should be clear, bright, and natural, not dark brown.

QUANTITY RECIPE FOR APPLE BUTTER

Use only sound apples or firm portions of windfalls or culls. Tart varieties require more sugar but make a better quality of butter than mild or sweet apples. Pare and slice apple. Fair quality butter can be made without peeling and coring. The blossoms should, however, be removed and the apples halved. Sound portions of otherwise defective apples can be used. Cover apples with cider or use equal measures of fruit and cider, or a 50-50 mixture of cider and water. It takes about 6 gallon of cider for 1 bushel of apples.

Cook until the fruit is soft, stirring constantly. Press through a colander, then through a fine sieve (22 mesh) to remove all fibrous material and give a smooth consistency. The quantity of sugar varies according to taste, but the usual proportion is half as much sugar as fruit pulp, or about 8 to 10 lbs. for each bu. of apples. Add $\frac{1}{4}$ to $\frac{1}{2}$ teaspoon of salt to each gallon of butter. Boil rapidly and stir constantly to prevent burning.

As the butter cooks down and becomes thicker reduce the heat to prevent spattering. When the butter is thick, test by pouring a small quantity on a cold plate. Cook until no rim of liquid separates around the edge of the butter.

Stir in spices as desired; for example, 1 to 2 teaspoons of mixed ground spices to the gallon of butter, or 2 oz. of ground cinnamon and 1 oz. of ground cloves per bushel of apples. Use only fresh spices and just enough to give a delicate flavor without obscuring the natural fruit flavor. Or if a light colored butter is desired, add whole spices tied loosely in a cheese-cloth bag while the butter is cooking.

Pour the butter while boiling hot into hot containers partially sealed and process 5 minutes in a water bath.

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J. W. BURCH, Director, Agricultural Extension Service

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