

# Review of Popular Fruit Ingredients for Confectionery

Form	Most Commonly Available	Relative Cost	Where Typically Used	Comments
Puree	Most fruits	\$-\$\$\$	Gels & gummies/centers for chocolates and hard candies/licorice/chewy candy	Price ranges widely dependent on fruit involved/ can be low solids/require refrigeration/some come with or without seeds/whole fruit so can be thick or fibrous if fruit source is high in fiber or total
Concentrated Puree	Apple, pear, other characterizing fruits	\$-\$\$	Gels & gummies/centers for chocolates and hard candies/licorice/chewy candy	Price ranges with fruit/ tend to be higher solids/ tend to be darker (brownier) than single strength/ need refrigeration (if aseptically packed, after opening)
Base Juice Concentrate	Apple, white grape, pear	\$	Gels & gummies/centers for chocolates and hard candies/licorice/chewy candy	Neutral fruit to add fruit economically/tend to brown/ beware of wide range of pH for apple juice concentrate (different varieties used) when sucrose inversion is critical or in pectin gels
Characterizing Juice Concentrate	Most fruits	\$\$-\$\$\$	Gels & gummies/centers for chocolates and hard candies/licorice/chewy candy	Solids depend on fruit, some like watermelon are made from whole fruit so don't taste like the fruit as normally eaten
Juice Concentrate (for sourness)	Lemon	\$\$	Where citric acid solution is used	Much higher relative cost versus normal citric acid but allows for more "natural" flavor claim, can impart other flavor components and can be brown
Dried Whole Fruit	Raisins, apricots, mango,	\$-\$\$	Center for panning, inclusion for thicker chocolates, enrobed with chocolate, snack mixes, chocolate bark, caramel/fudge/nougat inclusion	Surface treatment (oil) to avoid clumping can interfere with adherence in panning and shorten shelf in chocolate, sulfites to keep color can be undesirable for certain customers
Sweetener-Infused Dried Fruit	Cranberries, Cherries, pineapple, mango, etc.	\$-\$\$	Center for panning, inclusion for thicker chocolates, enrobed with chocolate, snack mixes, chocolate bark, caramel/fudge/nougat inclusion	Cranberries/cherries/berries can clump or squish Issues with matching water activities can be critical for snack mixes
Freeze-Dried Fruit—whole	Range of berries	\$\$\$\$-\$\$\$\$\$	Centers for panning, chocolate bark	Very low density so very high price per pound/ fresher flavor/can be tender or fragile/typically hygroscopic/typically good color

Form	Most Commonly Available	Relative Cost	Where Typically Used	Comments
Freeze-Dried Fruit—pieces	Various fruits	\$\$\$\$	Chocolate inclusion, fat-based cream inclusions	Tend to be hygroscopic/typically start crunchy, but then can become rubbery as they absorb water
Freeze-Dried Fruit Powder	Various fruits	\$\$\$-\$\$\$\$	Fat-based cream chocolate center, fat-based coatings, marshmallow/chocolate panned dusting, hydrated and used in water-based confections	Tends to be brighter in color and flavor than roller dried
Roller-Dried Fruit Powder	Various fruits	\$\$-\$\$\$	Fat-based cream chocolate center, fat-based coatings, marshmallow/chocolate panned dusting, hydrated and used in water-based confections	More cooked flavor and harder to dissolve, sometimes less visually attractive
Flavor-Infused Dried Fruit (low-moisture)	Apple base Flavors available, many fruits	\$	Cereal bars, Center for panning, inclusion for thicker chocolates, enrobed with chocolate, snack mixes, chocolate bark, caramel/fudge/nougat inclusion	Different flavors and different piece sizes available
Fruit Pulp Cells	Citrus	\$\$	Fillers in gel layers	Require frozen storage
Fruit Fiber	Apple, cranberry, etc.	\$\$	Any application where fiber can be used	Can be from juice concentrate waste stream
Vacuum-Fried Fruit	Various: banana, starfruit	??	Cereal bars, center for panning, inclusion for thicker chocolates, enrobed with chocolate, snack mixes, chocolate bark	Small batch in Asia but not industrialized in large scale yet (so cost is unknown but typically less than freeze dried); crunchy; small amount of fat is absorbed so shelf life of chocolate applications may be shortened
Fabricated Fruit Gel Pieces	Various	\$\$-\$\$	Cereal bars, center for panning, inclusion for thicker chocolates, enrobed with chocolate, snack mixes, chocolate bark, caramel/fudge/nougat inclusion	Can vary on fruit content and amount of cooked color/flavor
Fabricated Fruit Granules	Various	\$\$-\$\$	Centers for panning, chocolate bark, fat-based cream centers	Typically crunchy/can vary on fruit content

**General considerations of most fruit ingredients:**

- Level of reducing sugars (browning – flavor and color)
- Level of simple sugars (contribute stickiness/hygroscopicity)
- Level of fiber (contribute viscosity and fouls cookers and screens)
- Level of acid naturally occurring (increases inversion of sucrose, contributes flavor)
- Lack of polysaccharide content in juice, depending on formulation, may make it a poor replacement of glucose syrup (lack of body, lower inhibition of sucrose crystallization)
- Most of these products can be subject to crop year and source variation as well as shortages due to crop failures/natural disasters