



Montezuma Orchard Restoration Project

Feasibility Study for Producing Apple Juice with a Mobile Juice Unit

Funded by:

Colorado Department of Agriculture: Enrich CO Ag

Gates Family Foundation

Kenney Brothers Foundation

Whole Foods Market

United States Department of Agriculture:

Local Food Promotion Program

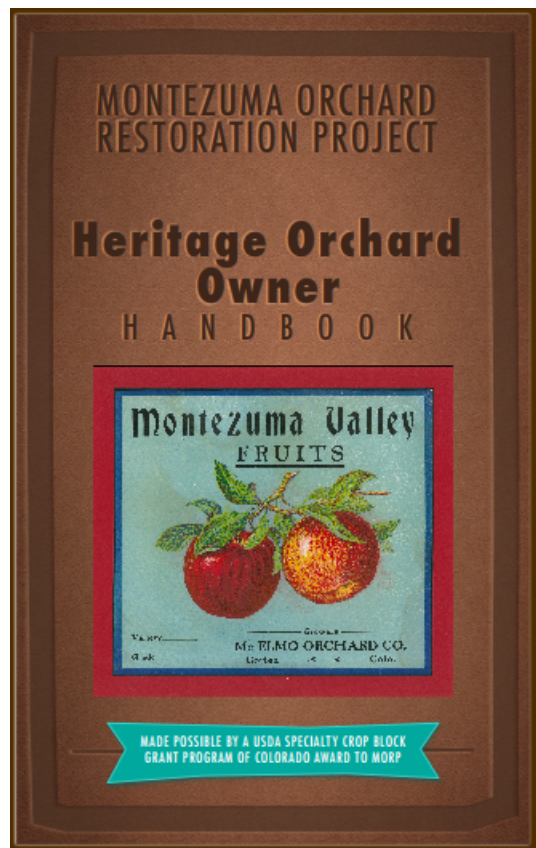
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Description of Organization and Proposed Business Offering

Description of the Montezuma Orchard Restoration Project

Montezuma Orchard Restoration Project (MORP) formed in 2008 as an informal partnership with the Montezuma County Historical Society. Through conversations with descendants of pioneer settlers, MORP founders and horticulturalists Addie and Jude Schuenemeyer were excited to learn that fruit orchards featured prominently in the agricultural landscape of southwestern Colorado during the early 1900s. Montezuma County was known for its quality fruit and some 200 historic orchard sites (primarily apple orchards) still exist today. Thousands of heritage trees live in these orchards, and many of the rare fruit varieties are more resilient, better adapted, and tastier than commodity varieties grown commercially today. These trees hold tremendous value not only in their history and genetic diversity but in their potential in restored and new orchards that serve as the foundation of a local fruit economy. MORP envisions southwestern Colorado being renowned again for an orchard culture and economy based on the legendary quality and diversity of Montezuma Valley fruits, and believes this possible through research, education, and preservation. Its mission is to preserve Colorado's fruit growing heritage and restore an orchard culture and economy to the southwestern region.



Description of Business Structure

MORP formed in 2008 as an informal partnership with the Montezuma County Historical Society. Today, it operates under the fiscal sponsorship of the San Juan Resource Conservation and Development Council. MORP's founders, Addie and Jude Schuenemeyer work closely with MORP's Board of Directors and in compliance with the organization's by-laws. With this structure, MORP has implemented projects with funding from the Ballantine Family Foundation, the Colorado Department of Agriculture's Enrich CO Ag, the Gates Family Foundation, History Colorado's State Historic Fund Grant Award, Kenney Brothers Foundation, Whole Foods Market and the United States Department of Agriculture's Local Food Promotion Program and Block Grants Awards for the State of Colorado. It plans to continue to evaluate and update the business structure as the organization grows. The proposed business activity of making apple juice will be an activity of the existing organization.

Summary of the Proposed Business Offering

As part of its commitment to rebuilding an orchard economy in the region, MORP proposes to purchase and operate a mobile juice unit that will produce pasteurized apple juice for retail sale and unpasteurized apple juice as an ingredient for commercial hard cider makers. Based on on-going orchard survey work,

MORP estimates a potential supply of over 50,000 bushels of apples from existing but largely unmaintained, vintage trees in the region.¹

Description of Products and Services

MORP will press the region's apples into unpasteurized apple juices that can be used for both pasteurized apple juice and hard apple cider production. The mix of apple varieties used will differ based on the end purpose and, in some cases, the specifications of the customer. MORP will be able to pasteurize the juice with a piece of equipment on the mobile juice press and package it in five-gallon, pasteurized apple juice bag-in-boxes (or other containers). MORP will generally not pasteurize the juice to be used as an ingredient in hard cider. Instead, it will pump this product immediately into 270-gallon totes to be shipped to the cider maker who will mix it with other ingredients and ferment it into hard apple cider. As shown in the picture to the right, MORP piloted this process with a mobile juice press in 2016.



As outlined below, MORP's juicing business will sell both products and services:

Product or Service	Customers
Retail Product = Pasteurized Apple Juice (produced and sold by MORP)	Local community and visitors to events
Retail Product = Pasteurized Apple Juice (produced and sold by MORP)	Hobbyists making hard cider
Wholesale Product = Unpasteurized Apple Juice (produced and sold by MORP)	Commercial Cideries
Service = Juicing and Pasteurization of Apple Juice for Consumption or Gifts (not for resale)	Farmers
Service = Juicing of Apple Juice as Ingredient for Cider	Farmers or Commercial Cideries

NOTE: Retail businesses are interested in purchasing and reselling pasteurized apple juice from MORP. Given the requirements for a HACCP plan (and an approved permanent building to house the press while doing such juicing), MORP considers this wholesale juice market a future opportunity.

¹ See the Montezuma Valley Apple Market Study (<http://montezumaorchard.org/2016/09/22/montezuma-valley-apple-market-study/>) updated by MORP in 2018 for more details.

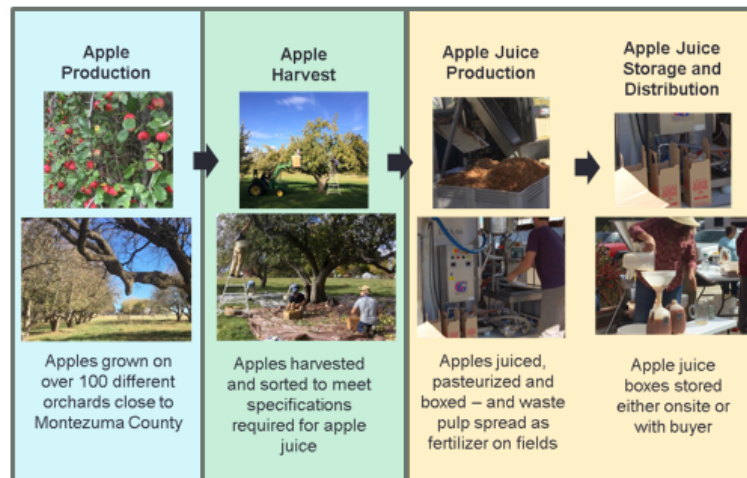
For the product business lines, MORP will purchase apples from local growers, produce the pasteurized apple juice or unpasteurized apple juice for cider and then sell the product to, respectively, retail customers or commercial cider makers. See below for a representation of MORP's role in the value chain of producing pasteurized apple juice that it will sell to retail customers:

Model One (Product):

MORP buys apples from farmer, presses them, pasteurizes the juice and sells apple juice retail.

Consumers purchase the apple juice at events and on location. Hobby cider makers also purchase the apple juice as an ingredient for their cider.

A future potential market for this juice would be online retail sales.

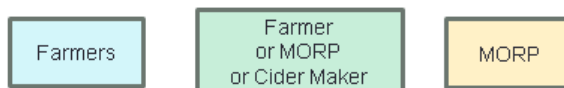
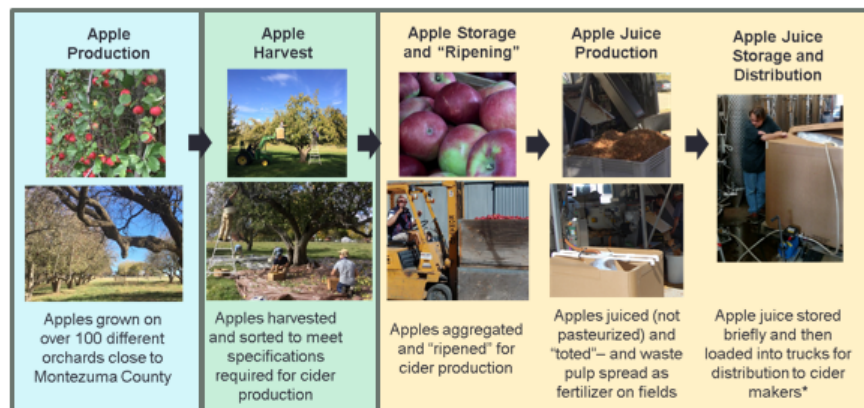


Similarly, see below for a representation of MORP's role in the value chain of producing apple juice as a cider ingredient that it will sell to cider makers:

Model One (Product):

MORP buys apples from farmer, stores and ripens some varieties in order to make apple juice for cider from a mix of the apple varieties.

Commercial cider makers purchase and transport the apple juice to their facilities for fermentation.



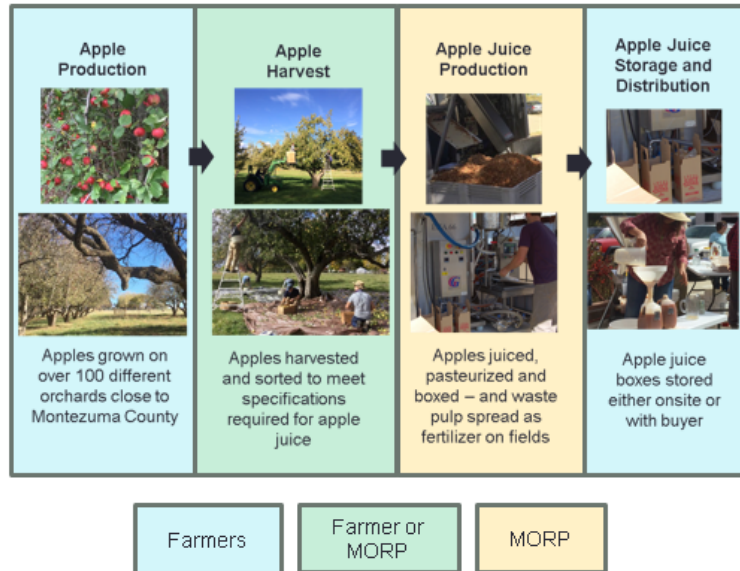
** Commercial cider makers will be encouraged to attend the pressing day(s) and load juice into their truck for same-day delivery.*

For the service business line, MORP will charge a fee for juicing the apples based on the volume of juice produced. As outlined in the diagram below, a farmer might hire MORP to make pasteurized apple juice for the farm and for gifts by paying MORP for the juicing services:

Model Two (Service):

Farmer hires MORP to make apple juice that the farmer consumes or gives to others (not to be resold).

A related version of this model might be a farmer hosting an apple picking event and visitors "hiring" MORP to make juice from the apples they had just picked.

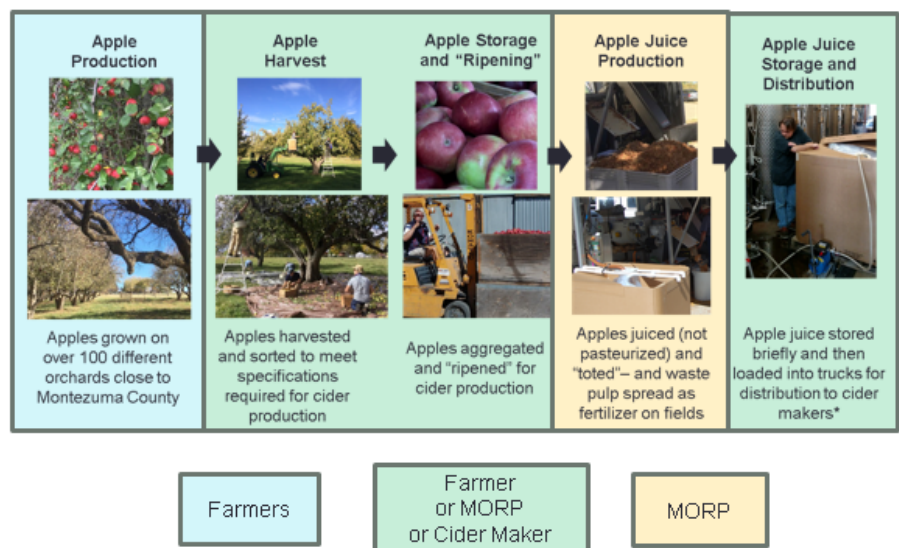


Finally, as outlined in the diagram below, either the farmer or the cider maker could order, define custom specifications for juicing and pay MORP for the making the apple juice that would then be fermented into a commercial hard cider.

Model Two (Service):

Farmer or commercial cider maker hires MORP to “custom-make” apple juice for cider from a mix of the apple varieties provided by the farmer. Commercial cider maker transports the apple juice to its facilities for fermentation.

In this model, the cider maker could contract with the farmer for apples (and pay for the juicing service) or the farmer could pay for the juicing service and then sell the apple juice to the cider maker



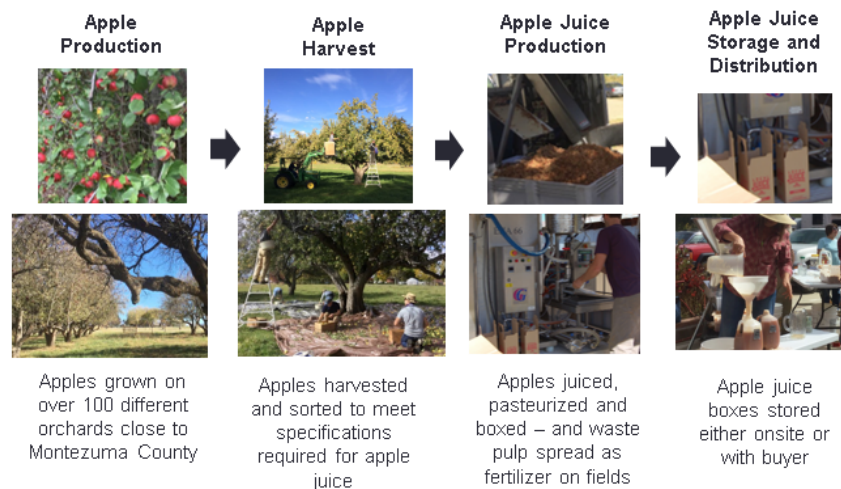
* Commercial cider makers will be encouraged to attend the pressing day(s) and load juice into their truck for same-day delivery.

Technical Feasibility

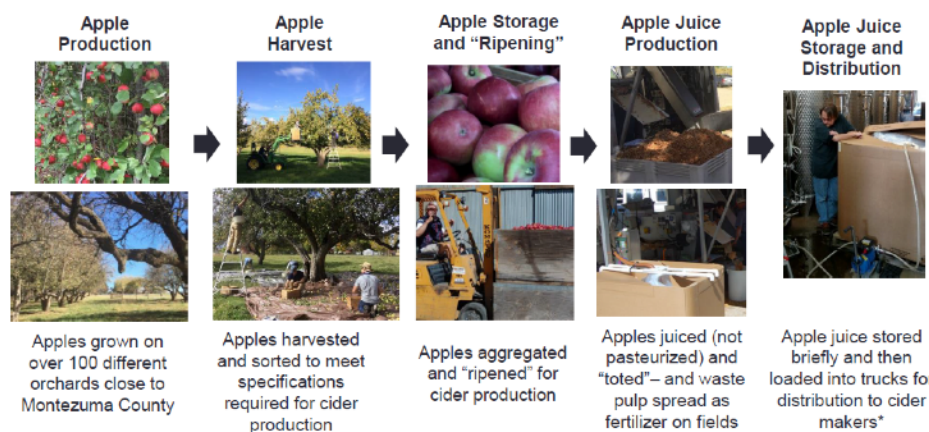
Summary of Material, Labor and Equipment Requirements

As described above, MORP's mobile juicing operations will include both a product-based business line and a fee-for-service business line. The two diagrams below capture the chain of events needed to produce either pasteurized apple juice for retail sale or unpasteurized apple juice to be sold to cider makers.

Value Chain for Pasteurized Apple Juice



Value Chain for Apple Juice as Ingredient for Cider



* Commercial cider makers will be encouraged to attend the pressing day(s) and load juice into their truck for same-day delivery.

For informational purposes, the sections below detail the material, labor and equipment requirements for each segment of the value chain: Apple Production, Apple Harvest, Apple Storage and Ripening, Apple Juice Production and Apple Juice Storage and Distribution. They also identify the entity responsible for these requirements. Please note, however, the financial feasibility for the mobile apple juice unit does not include the costs associated for apple production or harvest (which, for purposes of the financial feasibility model, are the responsibility of the farmer or the customer).

Requirements for Growing and Harvesting Apples for Apple Juice

Apple Production

With a core mission to “restore an orchard culture and economy to the southwestern region,” MORP’s ultimate goal aligns directly with the first stage of the value chain, apple production. For the orchard culture *and* economy to grow, the volume, variety and mix of apples being produced must fulfill the market’s requirements. Some of the orchards with vintage trees need to be rehabilitated; other orchards need to be planted with heritage varieties that support these market needs.

As noted in the comments from Colorado cider makers below, the value of apple juice as an ingredient for cider is impacted by the availability of different varieties of apples to mix into the juice.

Comments from Colorado Cider Makers about Desired Apples for Cider Production

If you can find more fruit with tannin that would be helpful. We would like to use more Winesap juice in the future.

For cider-making purposes, we'd need a more diverse mix of apples, with fewer Red Delicious apples in the mix. As lovely as they are, they do not make good cider. The percentage was quite high and we were required to blend it heavily with other more cider-specific apple juice.

In terms of numbers, being able to produce a juice blend in the range of 3.6pH and 13 brix / just under 7% abv potential is a good goal if juicing for the larger cideries. For one-off or seasonal batches, those numbers aren't as important, but you'll have stability issues with the juice if its pH is too high...which it often can be with dessert varieties.

Nationally and locally, there is a limited number of trees with the varieties desired by cider makers (and listed above), especially those high in tannin. The vintage trees currently found in Montezuma County are dual-purpose varieties that are good as fresh apples and as a quality base juice for cider that is of Colorado origin, naturally grown, and from heritage varieties. Cider makers have added tannins to this blend to make award winning cider. In 2016, the Montezuma Valley Heritage Blend tested at a 3.2 PH. According to author and cider maker Ben Watson, “a good acidity reading for juice is somewhere between 3.0 and 3.8.”

MORP and others recognize that, for cider makers, the value of the juice from Montezuma County can be increased in the future by expanding the number of apple trees producing prized cider varieties. MORP directly supports the rehabilitating of historic orchards and planting of new orchards with heirloom apple varieties to meet this need. MORP has a tree nursery where it grows and makes these rare and desired apple varieties available to the community (see: <http://montezumaorchard.org/2017/01/23/morp-tree-sale-late-spring-2017>). Furthermore, thanks to a USDA Specialty Crop Grant Award for the State of Colorado, MORP is work-



ing in partnership with Colorado State University Extension Orchards on a Colorado Heritage Apple Trials Initiative. Through propagation, orchard trials, information sharing and education, this initiative will increase knowledge and availability of seedlings, scion and Colorado-grown apple trees.²

While MORP will continue to play an active role in making these varieties available to the community, the farmers and landowners – not MORP – will be the ones ultimately establishing and cultivating (and investing in) the apple orchards which provide the apples for the apple juice products.

Required Inputs for Apple Production		
Stage of Production	Input(s)	Responsible Party
All Stages	Land, Soil, Climate and Water for Growing Apples	Landowner
Rehabilitation of Existing Orchard (1x Expenses)	Existing Trees of Desired Varieties	Landowner
	Tractors, ladders and hand equipment for initial pruning	Landowner or MORP
	Labor for initial pruning	Landowner
Planting of New Trees (1x Expenses)	New Trees of Desired Varieties	Landowner
	Tractors and hand equipment for preparing soil, digging holes and planting	Landowner or MORP
	Labor for preparing soil, digging holes and planting	Landowner
Cultivation	Fencing	Landowner
	Fertilizer	Landowner
	Pest and Weed Management	Landowner
	Labor for Farming and Pruning	Landowner

² Scion is a section of a tree stem with leaf buds (stem, branch) that is then grafted into the stock of another tree. MORP is both making scion of vintage apple tree varieties available to the community to graft onto existing tree stocks as well as actually grafting the scion onto the rootstock to produce these apple tree varieties.

Apple Harvest

Apples in the region are generally harvested with by hand-stripping and tree-shaking methods. They are then loaded into large orchard bins for transport. Some of the apple varieties desired most by cider makers in Montezuma County on the oldest trees; these trees are not suited to tree-shaking as a harvesting method. This can potentially make the cost of harvesting these varieties of apples quite high.



Required Inputs for Apple Harvest

Stage of Harvest	Input(s)	Responsible Party
Picking and Sorting	Tree Shaker (Depends on Variety)	Landowner or MORP
	Cherry Picker or Picking Platform (Depends on Variety)	Landowner or MORP
	Crates and Bins	Landowner or MORP
	Ladders, tarps and hand equipment	Landowner or MORP
	Forklift for lifting bins of apples	Landowner or MORP
	Tractor or Vehicle for transporting bins from field	Landowner or MORP
	Labor for harvesting and sorting	Landowner

Crates and bins for harvest and storage are a significant cost (with long payback periods) for individual farmers. These costs can be distributed across multiple farms if a single entity like MORP owned and recycled the bins, across a season that could last nearly six months (between the harvest time for different varieties and the ripening periods for some varieties for cider purposes).



As noted above, while MORP will invest in bins and crates to reduce the cost of harvest for participating orchard owners, we do not consider the cost of harvest part of the financial feasibility model for apple juice production with the mobile unit. Either the farmer or the customer will be responsible for the costs of the harvest; MORP will either provide the juicing of these apples as a service (for a fee) or will pur-

chase the apples for a price that depends on whether MORP or the farmer will be paying the costs of the harvest.

Requirements for Producing, Storing and Distributing Apple Juice

Apple Storage and Ripening

Producing both pasteurized apple juice for retail and unpasteurized apple juice as a cider ingredient requires a location for storing certain types of apples between harvest and juicing.

As noted in the chart at the bottom of this page, some early fall apple varieties are ready for juicing into a cider ingredient immediately after harvest; others, largely the late fall and winter varieties, see their acidity and sugar content (brix) improve during a four- to twelve-week storage period after harvest. Storage of the apples requires bins in which the apples can ripen, a storage facility and the ability transport the apples to and within the storage facility.



With sufficient storage capacity, MORP can press apples over many months, rather than during a brief harvest window, thus increasing the utilization of the mobile juice unit and related equipment.

Required Inputs for Apple Storage and Ripening		
Stage of Harvest	Input(s)	Responsible Party
Transport from Field to Juicing Location	Forklift for lifting bins of apples onto and off truck	MORP or Customer
	Bins for apples	MORP or Customer
	Truck for transporting bins of apples to juicing location	MORP or Customer
	Labor for transporting from field to juicing location	MORP or Customer
Storage and ripening of apples	Storage facility for storing apple varieties as they ripen	MORP or Customer

Early Fall Apple Varieties which are Ready for Juicing for Cider Product at Harvest:

Grimes Golden, **Golden Delicious**, **Winter Banana**, Famuse/Snow, MacIntosh, Smith Cider, Senator, **Wealthy**

Late Fall / Winter Apple Varieties which Add Benefits to Cider Product with Post-Harvest Ripening:

Jonathan, Hewes Crab and other unknown Crabs, **Delicious**, **Rome**, Winesap, **Ben Davis**, Ralls, Wagener

NOTE: MORP has found the greatest number of the varieties in **bold**. These varieties would be used as the main juice component. The other varieties listed (and many more not listed here) would be mixed into the blend to add character. For additional varieties, please visit: <http://montezumaorchard.org/2017/01/23/morp-tree-sale-late-spring-2017/>

Juice Production, Storage and Distribution

Juice can be produced with a mobile juicing unit that is pulled into a “docking station” which, at a minimum, has power, clean water and a bathroom available. In addition, juice production requires access to a location (e.g., field, livestock operation) interested in using the leftover apple pulp waste as fertilizer or feed. Finally, while some customers will want to observe the pressing and ship the juice immediately to the cidery for fermentation, others will need the juice to be stored in a forklift-accessible cold room for a few days prior to transportation.

In the first years of operations, MORP envisions maintaining and utilizing a central docking station (with the needed infrastructure as well as a sufficient supply of crates and bins) located in Cortez, Colorado, for juice production. As the demand for juice from the region grows, MORP will work with partners who maintain similar docking stations for the mobile juice unit in nearby counties.

Required Inputs for Juice Production, Storage and Distribution

Stage of Juicing, Storage and Distribution	Input(s)	Responsible Party
Juicing and packaging	Appropriate variety and ripened apples for type of juice being made	MORP or Customer
	Bins for apples	MORP or Customer
	Forklift for lifting bins of apples and totes	MORP or Customer
	Location for docking station with power, clean water and bathrooms	MORP or Customer
	Mobile juice press	MORP
	Five-Gallon Bag-in-Box packages (for pasteurized apple juice)	MORP or Customer
	270-Gallon Totes (for apple juice for cider)	MORP or Customer
	Labor for operating and cleaning juice press	MORP
Storage	Location for storing shelf-stable pasteurized apple juice in bag-in boxes	MORP or Customer

	Forklift-accessible Cold Room for storing apple juice for cider in 270-gallon totes	MORP
Distribution	Loading dock	MORP
	Labor for loading totes on trucks	MORP
Waste Pulp Disposal	Fields for spreading apple pulp as fertilizer	MORP or Customer
	Truck to transport apple pulp waste as fertilizer	MORP or Customer
	Tractor and spreader for fertilizing field with pulp	MORP or Customer
	Labor for transporting and spreading pulp as fertilizer	MORP or Customer

Financial Feasibility of MORP's Juicing Business

Summary of annual capital requirements for the mobile juicing business

	Establishment Years				Year 5+
	Year 1	Year 2	Year 3 ^[1]	Year 4 ^[1]	
Annual Requirements (\$)					
Mobile Juicer	\$ -	\$ 215,000	-	-	-
Refrigerated Storage[1]	\$ 64,000	\$ -	-	-	-
Indoor Warehouse for Trailer[2]	\$ 26,000	\$ -	-	-	-
Loading Platform	\$ 15,000	\$ -	-	-	-
Bins	\$ 13,000	\$ 14,000	\$ 1,900	\$ 12,600	\$ 4,900
Bin trailer	\$ 6,000	\$ -	-	-	-
Crates	\$ 4,050	\$ 5,000	\$ -	\$ 5,000	\$ -
N/A	\$ -	\$ -	-	-	-
N/A	\$ -	\$ -	-	-	-
Operating Expenses	\$ 95,156	\$ 145,959	\$ 167,062	\$ 223,363	\$ 272,349
Total Requirements (\$)	\$ 223,206	\$ 379,959	\$ 168,962	\$ 240,963	\$ 277,249
Receipts (\$)	\$ 71,334	\$ 180,978	\$ 211,361	\$ 307,133	\$ 383,091
Net Requirements (\$)	\$ 151,872	\$ 198,981	\$ (42,399)	\$ (66,171)	\$ (105,842)

NOTES:

^[1] Refrigerated storage construction costs based on industry standard range of \$150-170/SF

^[2] Dry warehousing construction costs based on industry standard range of \$50-65 / SF

Projected Five-Year Returns

Income Statement for Apple Juicing Business

	Year 1	Year 2	Year 3	Year 4	Year 5+
Gross Production					
Bushels of Apples Harvested	3,200 bushels	8,000 bushels	10,000 bushels	15,000 bushels	20,000 bushels
Total Gallons of Apple Juice Produced	10,568 gallons	26,420 gallons	33,025 gallons	49,538 gallons	66,050 gallons
Gross Revenue					
Fee-for-Service Business Line - Apple Juice for Cider	\$ -	\$ 10,568	\$ 19,815	\$ 39,630	\$ 66,050
Fee-for-Service Business Line - Pasteurized Apple Juice	\$ -	\$ 5,284	\$ 19,815	\$ 39,630	\$ 66,050
Product Business Line - Apple Juice for Cider	\$ 34,346	\$ 72,655	\$ 72,655	\$ 104,029	\$ 118,890
Product Business Line - Pasteurized Apple Juice for Retail	\$ 36,988	\$ 92,470	\$ 99,075	\$ 123,844	\$ 132,100
Total Gross Revenue	\$ 71,334	\$ 180,978	\$ 211,361	\$ 307,133	\$ 383,091
Variable Costs					
<u>Cost of Apples for MORP Products</u>					
Cost of Apples (MORP Products Only)	\$ 19,200	\$ 40,800	\$ 42,000	\$ 54,000	\$ 60,000
<u>Harvest of Apples for MORP Products</u>					
Full cost of labor for apple harvest	\$ 12,800	\$ 27,200	\$ 28,000	\$ 36,000	\$ 40,000
less: Value of volunteer labor for apple harvest	\$ (9,600)	\$ (13,600)	\$ (8,400)	\$ (9,000)	\$ (6,000)
<u>Storage and Ripening of Apples for Cider</u>					
Forklift rental (for lifting apple bins)	\$ 1,600	\$ 3,400	\$ 3,500	\$ 4,500	\$ 5,000
Truck rental (for transporting apple bins)	\$ 192	\$ 408	\$ 420	\$ 540	\$ 600
Cost of labor (for transporting apple bins)	\$ 819	\$ 1,741	\$ 1,792	\$ 2,304	\$ 2,560
<u>Juicing and Packaging of Apple Juice</u>					
Hiring of Mobile Juicing Company (Year 1)	\$ 15,852	\$ -	\$ -	\$ -	\$ -
Forklift rental (for lifting apple bins)	\$ 4,095	\$ 10,238	\$ 12,797	\$ 19,196	\$ 25,594
5-Liter Bag-in-Box Containers for Apple Juice	\$ 2,800	\$ 8,001	\$ 11,251	\$ 16,877	\$ 22,502
270-Gallon Totes for Apple Juice for Cider	\$ 6,500	\$ 14,750	\$ 17,000	\$ 25,250	\$ 33,750
Cost of labor (for operating apple juicer)	\$ 2,097	\$ 5,242	\$ 6,552	\$ 9,828	\$ 13,104
Cost of forklift rental (for loading totes onto trucks)	\$ 2,662	\$ 6,143	\$ 7,038	\$ 10,558	\$ 14,077
Cost of labor (for loading totes onto trucks)	\$ 734	\$ 2,097	\$ 2,948	\$ 4,423	\$ 5,897
Cost of truck and trailer rental (for transporting apple waste)	\$ 491	\$ 1,229	\$ 1,536	\$ 2,304	\$ 3,071
Cost of labor (for transporting apple waste)	\$ 2,097	\$ 5,242	\$ 6,552	\$ 9,828	\$ 13,104
<u>Other Variable Costs</u>					
Overhead (5% of VC)	\$ 3,117	\$ 5,644	\$ 6,649	\$ 9,330	\$ 11,663
Total Variable Costs	\$ 65,456	\$ 118,533	\$ 139,637	\$ 195,938	\$ 244,924
Fixed Costs					
<u>Depreciation</u>					
Mobile Juicer	\$ -	\$ 21,500	\$ 21,500	\$ 21,500	\$ 21,500
Building Construction and Improvements	\$ 5,250	\$ 5,250	\$ 5,250	\$ 5,250	\$ 5,250
Machinery and Equipment	\$ 2,305	\$ 4,205	\$ 4,395	\$ 6,155	\$ 6,645
<u>Interest</u>					
PPR Loan	\$ -	\$ 3,575	\$ 3,575	\$ 3,575	\$ 3,575
<u>Other Fixed Costs</u>					
Property and Facility Leasing	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000
Juicer Maintenance	\$ -	\$ 750	\$ 750	\$ 750	\$ 750
Tractor Maintenance	\$ 700	\$ 700	\$ 700	\$ 700	\$ 700
Insurance Cost	\$ -	\$ 3,400	\$ 3,400	\$ 3,400	\$ 3,400
Marketing Plan Development	\$ 10,000	\$ -	\$ -	\$ -	\$ -
MORP Staffing Support	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Total Fixed Costs	\$ 37,255	\$ 58,380	\$ 58,570	\$ 60,330	\$ 60,820
TOTAL COSTS	\$ 102,711	\$ 176,914	\$ 198,207	\$ 256,268	\$ 305,744
ESTIMATED NET RETURNS	\$ (31,377)	\$ 4,064	\$ 13,154	\$ 50,866	\$ 77,347
Operating Margin	Negative	2%	6%	17%	20%

Key Metrics by Business Line

Volume of Apples Made into Juice		Year One	Year Two	Year Three	Year Four	Year Five
Total Bushels of Apples Used for Juice		3,200 bushels	8,000 bushels	10,000 bushels	15,000 bushels	20,000 bushels
Bushels - Apple Juice for Cider (Service)		0 bushels	900 bushels	1,500 bushels	3,000 bushels	5,000 bushels
Bushels - Pasteurized Apple Juice (Service)		0 bushels	400 bushels	1,500 bushels	3,000 bushels	5,000 bushels
Bushels - Apple Juice for Cider (Product)		2,080 bushels	4,000 bushels	4,000 bushels	5,250 bushels	6,000 bushels
Bushels - Pasteurized Apple Juice (Product)		1,120 bushels	2,600 bushels	3,000 bushels	3,750 bushels	4,000 bushels
Pounds of Apples Made into Juice		Year One	Year Two	Year Three	Year Four	Year Five
Total Pounds of Apples Used for Juice		128,000 pounds	320,000 pounds	400,000 pounds	600,000 pounds	800,000 pounds
Pounds of Apples - Apple Juice for Cider (Service)		0 pounds	32,000 pounds	60,000 pounds	120,000 pounds	200,000 pounds
Pounds of Apples - Pasteurized Apple Juice (Service)		0 pounds	16,000 pounds	60,000 pounds	120,000 pounds	200,000 pounds
Pounds of Apples - Apple Juice for Cider (Product)		83,200 pounds	160,000 pounds	160,000 pounds	210,000 pounds	240,000 pounds
Pounds of Apples - Pasteurized Apple Juice (Product)		44,800 pounds	112,000 pounds	120,000 pounds	150,000 pounds	160,000 pounds
Volume of Apple Juice Produced		Year One	Year Two	Year Three	Year Four	Year Five
Total Gallons of Apple Juice Produced		10,568 gallons	26,420 gallons	33,025 gallons	49,538 gallons	66,060 gallons
Gallons of Juice - Apple Juice for Cider (Service)		0 gallons	2,842 gallons	4,954 gallons	9,908 gallons	16,513 gallons
Gallons of Juice - Pasteurized Apple Juice (Service)		0 gallons	1,321 gallons	4,954 gallons	9,908 gallons	16,513 gallons
Gallons of Juice - Apple Juice for Cider (Product)		6,889 gallons	13,210 gallons	13,210 gallons	17,338 gallons	19,815 gallons
Gallons of Juice - Pasteurized Apple Juice (Product)		3,699 gallons	9,247 gallons	9,908 gallons	12,384 gallons	13,210 gallons
Days of Juicing		Year One	Year Two	Year Three	Year Four	Year Five
Total Days Juicing		16 days	41 days	51 days	77 days	102 days
Days Juicing - Apple Juice for Cider (Service)		0.0 days	4.1 days	7.7 days	15.4 days	25.6 days
Days Juicing - Pasteurized Apple Juice (Service)		0.0 days	2.0 days	7.7 days	15.4 days	25.6 days
Days Juicing - Apple Juice for Cider (Product)		10.6 days	20.5 days	20.5 days	26.9 days	30.7 days
Days Juicing - Pasteurized Apple Juice (Product)		5.7 days	14.3 days	15.4 days	19.2 days	20.5 days
Cost per Day of Juicing		Year One	Year Two	Year Three	Year Four	Year Five
Cost per Day of Juicing - All Business Lines		\$2,279 /day	\$1,293 /day	\$1,283 /day	\$1,260 /day	\$1,281 /day
Gross Revenue		Year One	Year Two	Year Three	Year Four	Year Five
Total Gross Revenue		\$ 71,334	\$ 180,978	\$ 211,261	\$ 307,133	\$ 383,091
Gross Revenue - Apple Juice for Cider (Service)		\$ -	\$ 10,568	\$ 19,815	\$ 39,630	\$ 66,050
Gross Revenue - Pasteurized Apple Juice (Service)		\$ -	\$ 5,284	\$ 19,815	\$ 39,630	\$ 66,050
Gross Revenue - Apple Juice for Cider (Product)		\$ 34,346	\$ 72,655	\$ 72,655	\$ 104,029	\$ 118,890
Gross Revenue - Pasteurized Apple Juice (Product)		\$ 36,988	\$ 92,470	\$ 99,075	\$ 123,844	\$ 132,100
Cost of apples, harvest and storage for MORP Product Line		Year One	Year Two	Year Three	Year Four	Year Five
Total Cost of Apples, Harvest and Storage for MORP Product Line		\$ 25,011	\$ 59,949	\$ 67,312	\$ 88,344	\$ 102,160
Cost of Apples - Apple Juice for Cider (Product)		\$ 12,480	\$ 24,000	\$ 24,000	\$ 31,500	\$ 36,000
Cost of Harvest - Apple Juice for Cider (Product)		\$ 2,060	\$ 8,000	\$ 11,200	\$ 15,750	\$ 20,400
Cost of Storage - Apple Juice for Cider (Product)		\$ 2,611	\$ 5,549	\$ 5,712	\$ 7,344	\$ 8,160
Cost of Apples - Pasteurized Apple Juice (Product)		\$ 6,720	\$ 16,800	\$ 18,000	\$ 22,500	\$ 24,000
Cost of Harvest - Pasteurized Apple Juice (Product)		\$ 1,120	\$ 5,600	\$ 8,400	\$ 11,250	\$ 13,600
Operational Costs (Variable)		Year One	Year Two	Year Three	Year Four	Year Five
Total Operational Costs (Variable)		\$ 62,339	\$ 112,809	\$ 132,987	\$ 186,607	\$ 233,261
Operational Costs (Variable) - Apple Juice for Cider (Service)		\$ -	\$ 5,294	\$ 9,851	\$ 19,653	\$ 32,775
Operational Costs (Variable) - Pasteurized Apple Juice (Service)		\$ -	\$ 2,647	\$ 9,851	\$ 19,653	\$ 32,775
Operational Costs (Variable) - Apple Juice for Cider (Product)		\$ 41,434	\$ 64,019	\$ 67,182	\$ 86,986	\$ 103,890
Operational Costs (Variable) - Pasteurized Apple Juice (Product)		\$ 20,905	\$ 40,929	\$ 46,103	\$ 58,316	\$ 63,820
Gross Profit		Year One	Year Two	Year Three	Year Four	Year Five
Total Gross Profit		\$ 8,985	\$ 68,089	\$ 78,373	\$ 120,526	\$ 148,830
Gross Profit - Apple Juice for Cider (Service)		\$ -	\$ 5,274	\$ 9,964	\$ 19,977	\$ 33,275
Gross Profit - Pasteurized Apple Juice (Service)		\$ -	\$ 2,637	\$ 9,964	\$ 19,977	\$ 33,275
Gross Profit - Apple Juice for Cider (Product)		\$ (7,088)	\$ 8,636	\$ 5,473	\$ 15,043	\$ 15,000
Gross Profit - Pasteurized Apple Juice (Product)		\$ 16,083	\$ 51,541	\$ 52,973	\$ 65,528	\$ 68,280
Contribution Margin (%)		Year One	Year Two	Year Three	Year Four	Year Five
Total Contribution Margin (%)		14%	67%	57%	66%	64%
Contribution Margin (%) - Apple Juice for Cider (Service)		0%	100%	101%	102%	102%
Contribution Margin (%) - Pasteurized Apple Juice (Service)		0%	100%	101%	102%	102%
Contribution Margin (%) - Apple Juice for Cider (Product)		-17%	13%	8%	17%	14%
Contribution Margin (%) - Pasteurized Apple Juice (Product)		77%	128%	115%	112%	107%

Funding Need

User Inputs - Funding assumptions		Year One	Year Two	Year Three	Year Four	Year Five
Grants	\$	150,000	\$ 150,000	\$ 15,000	\$ 15,000	\$ 10,000
Donation of Lease	\$	8,000	\$ 8,000	\$ 4,000	\$ -	\$ -
Other Donations of Cash or Labor	\$	2,500	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
User Inputs - PRI Loan assumptions		Est Cost per Unit	Notes			
Year of PRI		Year 1	User can enter a value between one and five. Interests payments come due the year following the loan year			
Principal Amount of PRI	\$	25,000				
Payback Period (in Years)		7 years	User can enter a value between five and ten			
Interest Rate of PRI		3.0%				
Output - Cash Flow Situation Summary		Year One	Year Two	Year Three	Year Four	Year Five
Beginning Cash	\$	-	\$ 33,628	\$ 1,222	\$ 71,196	\$ 160,942
Ending Cash	\$	33,628	\$ 1,222	\$ 71,196	\$ 160,942	\$ 285,359