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Organic Waste Management Strategy
Regional District of Okanagan Similkameen

TASK 3 - COMPOST & WOODCHIP MARKET POTENTIAL MEMO

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ORGANIC WASTE MANAGEMENT STRATEGY

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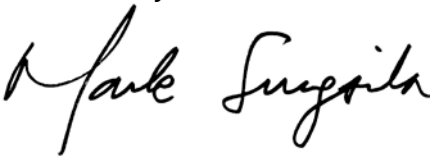

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1.0 INTRODUCTION

In December 2010, the Regional District of Okanagan Similkameen (RDOS) published a Regional Organic Waste Management Strategy, in recognition of the significant contribution this could make to landfill diversion goals. This document considered a range of options for the management of organics, and evaluated the costs and other impacts of a number of defined systems. The RDOS Solid Waste Management Plan (SWMP) was updated in June 2011 and sets out a program for implementation of key recommendations over the period up to 2017.

The RDOS has commissioned SLR Consulting (Canada) Ltd to carry out a variety of tasks in further support of the progression and implementation of a full organics management system. These can be summarized as follows:

- Collection Options Memo;
- **Compost & Wood Chip Market Potential Memo;**
- Review of Public Properties Feasibility Studies;
- Review of Private Compost Site RfP;
- Lifecycle Costing Memo;
- Triple Bottom Line Evaluation
- Recommended Scenario Report

This document represents the second of these tasks and is organised according to the following structure:

Section 2: Assessment of the current situation in the compost market;
Section 3: Consideration of future potential for the compost market;
Section 4: Overview of the market for wood chips
Section 5: Recommendations

2.0 COMPOST – CURRENT SITUATION

2.1 Compost generation in the RDOS

Compost has been created and used in the Okanagan Valley for many years. The RDOS keeps good data on the quantities of waste materials that are received at composting facilities managed by the District and the Municipalities. Latest relevant published statistics are set out in Table 1 below.

Table 1:
Segregated organic waste inputs to RDOS facilities (2013)

Composting facility	Technology	Input (tonnes/annum)	OMRR Compliant
Campbell Mountain (City of Penticton)	ASP & Open windrow	5,224	Product Yes but issues noted with facility
Campbell Mountain (RDOS)	Open windrow	7,873	No
Summerland	Open windrow	5,013	Yes
Okanagan Falls	Open windrow	1,266	No
Oliver	Open windrow	2,671	Yes
Osoyoos	Open windrow	835	Yes

Source: Tetra Tech Site Assessment Report - Dec 2014

Previous studies in support of organic waste management in RDOS have not examined in any detail the relationship between tonnages of waste materials received at compost facilities and the tonnages of waste sold. The City of Penticton does however keep good records of their biosolids composting operation. While the sizing of facilities and the estimation of capital and operating costs is primarily driven by waste input quantities, output tonnages and the future income that will be derived from them will be critically dependent upon the treatment process (or mix of processes) selected.

For the purpose of modelling lifecycle costs, SLR has drawn on experience of the design and operation of a range of organic processing facilities, handling municipal wastes to derive typical anticipated input/output ratios. Table 2 below sets out the figures that we have used in our Lifecycle Cost Assessment, which reflect the different mix of input waste types which are needed for effective operation.

Table 2:
Typical organics processing input/output ratios

Treatment process type	Output as % of input (by weight
Open Windrow	60%
In-vessel composting	65%
Anaerobic digestion	55%

Applying the above ratio for Open Windrow composting, to the input figures in Table 1 above, it is possible to estimate the likely tonnages of compost that currently could be generated from the public sector facilities in the RD, as shown in Table 3. It should be noted that landfills currently export organic chips to offsite users such as feedlots and other compost sites. Compost sites

receiving chipped organics include local agricultural operators and local government sites in the Central Okanagan.

Table 3:
Actual/estimated compost production

Composting facility	Source material	Potential Output (tonnes/annum)	Primary Use
Campbell Mountain (City of Penticton)	Biosolids	2,500[1.]	Sold
Campbell Mountain (RDOS)	Yard waste	4,725	Used Onsite
Summerland	Biosolids & yard waste	3,000	Sold
Okanagan Falls	Biosolids & yard waste	760	Used Onsite
Oliver	Yard waste	1,600	Sold and Used Onsite
Osoyoos	Yard waste	500	Sold

Notes: 1. Actual data 2015, from City of Penticton

Actual sales of City of Penticton biosolids-derived, screened and finished compost have varied between around 1,700 and 3,150 tonnes per annum over the last seven years. Given the stable population with very modest annual increase, it is not clear why the output volumes have fluctuated so significantly. Staff with the City of Penticton point to an increase in sale price reducing the volume of compost sold over several years. The amount of compost purchased increased once prices were dropped to prior levels. As such the demand for bio-solids-derived compost indicates significant price sensitivity due to other competing soil amendments in the local market and the perceived quality of the bio-solids compost.

Unfortunately there is no formal source of information on the quantities of compost created by the private sector. The 2010 Organic Waste Management Strategy includes a table of active composting facilities with indicative outputs and this data is repeated in the 2011 Solid Waste Management Plan. Limited information from our discussions with three private sector operators, discussed further in Section 2.2 below, suggests that between them they may handle around 16,000 tonnes per annum. Comparing this figure with the total private sector quantities identified in the Plans, suggests that these three firms are handling the majority of material which is being produced for use by third parties.

The RDOS does not keep a database of compost customers nor does it keep records of quantities sold for different end uses. We were therefore unable to follow one intended line of enquiry to understand more about quality expectations and future demand, from a cross-section of RDOS compost customers. We have however liaised with a number of local stakeholders in the compost market and identified the following:

- A representative of the Town of Osoyoos indicated that their Parks Dept was encouraged to utilize compost from the Osoyoos landfill wherever possible. Their discussions with the composting facility operator suggested that they were only just able to keep up with public demand for compost at the current sale price. The representative

did not however believe that there was any benefit in encouraging local wineries & orchards to bring more surplus organic waste to public sector facilities as this would involve additional processing costs;

- Discussions with the Parks Departments of various Municipalities within the RD indicated that they do not currently have any formal programs for encouraging use of public sector generated compost within public works or for requiring contractors to use specified compost products where appropriate.
- Representatives of local Municipalities and the RD also confirmed that there has been very little focus on formal marketing of compost products generated

2.2 Compost in the wineries & orchards sector

Data collected from the Statistics Canada Census of 2011 states that the Okanagan Similkameen covers an area of 1,041,300 Ha of which a total of 5,511 Hectares of fruits, berries and nuts were being farmed. Of these, 2,408 Ha were planted with grapes and 259 Ha with vegetables (excluding greenhouse vegetables).

A survey of wineries and orchards in the Regional District of the Okanagan Similkameen (RDOS) has been utilized to gather information on organic waste generation and production. These businesses are important generators of organic material with the potential to contribute to compost production in the RDOS and are significant users of compost materials.

The purpose of the survey was to collect information from a variety of different sized wineries and orchards and to establish what kind of organic waste they produce, determine quantities generated and find out how it is managed. We wanted to understand if they relied on public or private sector companies and what costs were incurred.

The survey consisted of phone calls and follow up emails to a variety of businesses across the RDOS. A selection was chosen from information gathered from the internet and first-hand knowledge of the area. A variety of small, middle sized and larger wineries and orchards were phoned and emailed. Of the 20 wineries and orchards contacted, information was collected from 8. From the information gathered, 3 other businesses involved with the wineries/orchards were contacted as they deal directly in organic waste management for these businesses. The contact person was generally either the owner of the business or the vineyard/orchard manager. These contacts were generally difficult to reach, required several follow up phone calls and represent a small percentage of the businesses in the area. Most respondents were wary in speaking about their business and required encouragement to answer many of the questions. Exact quantities and costs were difficult to extract.

Key findings of the survey included; 1) type of organic material generated – prunings, diseased wood, pomace (the pulpy residue remaining after fruit has been crushed) and yeast lees (residual yeast after fermentation of grapes), 2) approximate quantities of each type of organic material, 3) composting on or off site, 4) use of private or public sector collection of organic waste and cost, 5) purchase of compost and cost, 6) views on food waste and biosolids in compost. See Table 1 for data.

General findings indicate that almost all wineries and orchards, which can range in size from 7.5 acres to over 1000 acres, mulch their yearly prunings into the soil onsite. Diseased wood, which is rare, would be taken off site and to the landfill. Only one of the contacts has had to carry out a complete clearance due to disease in recent years, outside the typical cycle of

replanting every 20 years. Pomace from the fall harvest and press is generally taken off site with the exception of two wineries. One winery has a local distillery collect the yeast lees, which are used to make spirits, some of which the winery then buys back to be used in making their fortified wines.

Discussion with the wineries has not indicated any consistent relationship between unit area and quantity of compost generated. This appears to be a result of the high level of variables between different operations, such as:

- Whether grapes are exported to, or imported from, other wineries outside RDOS for wine making;
- Harvest volume fluctuations, year on year;
- Age and health of vine stock;
- Pruning style, and
- Method of harvesting.

All but one winery uses a private contractor to collect and haul their pomace/organic waste away. The two main local private businesses contracted are Southern Plus Feedlot in Oliver and Big Horn Contracting in Okanagan Falls. Approximate quantities of organic material removed are listed in Appendix A, where information was available. In almost all cases, the pomace/organic waste was removed or accepted free of charge to the wineries/orchards. Compost was purchased by some of the wineries and orchards in the spring. Some had agreements for free compost with the company that took the pomace, others got some compost for free and purchased the balance, others purchased what they required.

We understand from discussion with some wineries that Mission Hill makes their own compost using chipped wood from a RDOS landfill combined with their own pomace. This is part of a recognizable shift towards more sustainable business practices across BC wineries and in the Okanagan in particular[1]. In addition to the intrinsic ethical benefits, many businesses recognize that there are marketing benefits to demonstrable sustainable practices.

Views of respondents regarding the inclusion of food waste in compost were varied. Some businesses would consider purchasing compost with food waste, but some would not make their own compost with food waste due to perceived issues with rodents and animals. Another understood that composting with food waste would require a special building and equipment to manage the process properly.

The inclusion of biosolids was not an option for any of the businesses we spoke with. Some of the wineries/orchards advised that they could not use compost incorporating biosolids as this would not comply with the status of their registered organic processes. Others were not comfortable with the optics and one owner questioned whether the nutritional makeup of the compost and would in practice be suitable for vine growing.

2.3 Private sector composting

Two private compost businesses, Southern Plus and Big Horn Contracting, provided some information on how they operate. Southern Plus in Oliver is a feedlot that takes organic waste. Southern Plus is certified with the Organic Materials Review Institute (OMRI). They work with one of the large wineries collecting the organic waste and returning what compost the winery

[1] www.greentourismcanada.ca Green Wineries: July 13 2016.

requires in the spring. They have an internal business agreement with one large winery (estimated at a $40,000-50,000 value) that includes other business practices exchanged between the two but exact costs were not able to be determined. Southern also accepts organic waste, wood chips and prunings from other vineyards and orchards and in this case they do not charge for materials dropped off at their facility.

Southern sells the compost back to the businesses that provide them with organic wastes, at $15/$m^3$ where it is collected and up to $30/m³ delivered, depending on distance. Southern only works with local businesses from Osoyoos to Okanagan Falls. They do not believe that they would be able to market to a wider area. It is estimated they produce about (40,000 yards³) 30,600 m³ of compost each year. They do not accept residential food waste or biosolids and they are not interested in moving into that area as it would require a dedicated separate building, there would be potential issues with odours and it is a different type of process.

Big Horn Contracting collects organic waste from wineries and orchards in Naramata and Okanagan Falls. They are certified with the Organic Materials Review Institute (OMRI). The main business is cattle ranching and trucking and the composting is a small part of the overall business. They contract out most of the collection to Appleton Waste who charge them $50 per load of 15-30m³ (20-40 yds³). Big Horn produces about 1,150-1,500m³ (1,500-2,000 yds³) per year and most goes on their alfalfa fields. They sell any excess at $27-35 per yd³ (0.75m³) delivered locally depending on location.

Big Horn does not collect food waste or biosolids and are not interested in expanding into those source materials. They could grow larger but are currently reluctant to work with the RDOS. Feedback they obtained from similar businesses on Vancouver Island that took over composting operations from their Regional District was not positive. It was implied that a double standard existed when the private contractors were shut down due to odour and dust issues, at facilities which were not subject to the same stringency of regulation, when under public control.

Several winery respondents referred to a third, business (Southern Okanagan Equipment (SOE) in Oliver) which provides compost for 5 vineyards privately and does not sell their compost elsewhere. It is high quality but not certified to organic standards and is a finished, fully decomposed, neutral product. They sell it for $55/yard³ and sell approximately 300-400 yards³ per year to Andrew Peller (trucking included) and smaller quantities (trucking not included) to 4 other vineyards – Black Hills, Intersection, Summerhill and Robin Ridge.

Southern Plus and Big Horn Contracting have both indicated to us that they are unlikely to expand the volume of their current businesses. The SOE does not feel there is a much bigger market for their product due to the price. From the information we have collected from wineries/orchards and the businesses that serve them, it would appear that extended public sector composting operations would be able to continue to operate and grow alongside these businesses.

2.4 Compost management in RDCO

The Cities of Kelowna and Vernon have since 2006 collaborated on a program to optimise sales of their two primary compost products. The City of Kelowna commissioned a study of the market for these products in 2015 and some of the key findings of the study have been incorporated into this report.

2.5 Regulatory control of compost

The background to the regulatory control of composting operations and products is set out in full in the RDOS Regional Organic Waste Management Strategy of 2010. The key mechanism by which regulation is applied to composting is the Organic Matter Recycling Regulation (OMRR) of 2002.

In April 2016 the BC MoE announced a major new review and consultation in respect of a variety of elements of OMRR, including potential new standards for organic contaminants as well as requirements for the production, management and use of biosolids. This will include exploratory sampling of biosolids for selected organic contaminants. A policy intentions paper will be posted by the MoE in the fall of 2016, with a view to formally amending the OMRR during 2017. It will be important for the RDOS to monitor the direction of this consultation process as it will have the potential to affect the scope of future developments in the management of organic wastes in the RD.

It should be noted that the City of Penticton biosolids are not strictly biosolids, as defined[2] in OMRR and compost produced from them cannot accord with the requirements of the Organic Materials Review Institute (OMRI). The City is currently considering making significant investment in new infrastructure at the Campbell Mountain Landfill, in order to allow the product to fully meet OMRR standards and reduce the contributions that the current biosolids composting operation has on the environmental impacts of the landfill.

2.6 Compost pricing

There is very limited published information regarding prices charged for compost products in the RDOS area. The RD charges a standard $50 per tonne for non biosolids-derived compost collected from their sites. The City of Penticton charges $15 per tonne for biosolids-derived composted collected from Campbell Mountain Landfill, excluding internal sales for City use.

Pricing identified through our discussions with the wineries/orchards sector identified the following:

- Southern Plus: $15/m^3 ($33.75/t) collected or $30/m^3 ($67.50/t) including delivery;
- Big Horn Contracting: $36 – 47/m^3 ($81 - 105.75/t) including delivery;
- Southern Okanagan Equipment: $73/m^3 ($164.25/t) including delivery.

Note: Prices per tonne have been calculated on the basis of an assumed density of 0.45 tonnes per cubic metre.

Prices charged in the Regional District of Central Okanagan for “OgoGrow”, biosolids-derived compost, and “GlenGrow”, yard waste derived compost, vary on the basis of collected volume. Prices[3] in 2014 for Ogogrow were as follows:

[2] OMRR 2002: “Biosolids means stabilized municipal sewage sludge resulting from a municipal waste water treatment process or septage treatment process which has been sufficiently treated to reduce pathogen densities and vector attraction to allow the sludge to be beneficially recycled in accordance with the requirements of this regulation”.

[3] Lystek: Okanagan Biosolid Feasibility Report - 2014

Commonage Rd: From \$29/m^3 (\$64.44/t) for <50yd^3, to \$11.30/m^3 (\$25.11/t) for >5000yd^3;

Glenmore Landfill: From \$34/m^3 (\$75.55/t) for<50yd^3, to \$16.64/m^3 (\$36.98/t) for >5000yd^3;

On the basis of our research into prices charged and paid across the RD, we have proposed the following range of incomes from sales of compost products, within our Lifecycle Cost Assessment, reported under Task 7.

Table 4:
Assumed compost sales values, by site

SITE	Compost product without biosolids[4] ($/tonne)	Compost products with biosolids ($/tonne)
Campbell Mountain LF	40	10
Summerland LF	40	10
Keremeos LF	45	15
PIB Locatee Site	45	15
Golden Mile Organics	55[5]	20
Okanagan Falls LF	45	15
Oliver LF	50	20
Osoyoos LF	50	20

It should be noted that the differential between compost products generated with or without inclusion of biosolids is partially a function of the level of acceptability of the material in the local market and this will have a significant impact upon the lifecycle costings. Organic certification for food waste derived compost has the potential to add value.

3.0 COMPOST – FUTURE OPPORTUNITIES

Estimation of potential future material inputs to processing facilities in RDOS, with a full organics management program in place, was carried out by Tetra Tech in 2015, using the assumptions that 40% of MSW is food waste and that a diversion rate of 65% can be achieved. This would provide an additional 10,350 tonnes of organics from food waste. Tetra Tech also estimate that a further 10,730 tonnes of green waste, white wood and hog fuel could potentially be available as further organic inputs. This additional material could therefore potentially provide a further 16,950 tonnes of compost for sale through RDOS outlets. This figure should however be treated with some caution as it is likely that it will not be possible to include all of the additional identified wood waste within the composting feedstock.

It is clear from our research and that carried out for City of Kelowna that there is significant market resistance to the use of biosolids-derived compost amongst certain types of buyers. However, the success of the OgoGrow program confirms that there is also a ready market for

[4] But including food scraps

[5] As specified in GMO submission to RDOS Private Organic Sites RfP.

applications where the biosolids content is not relevant or where the purchase decision is driven more by price than by origin.

A City of Kelowna study identified that while product sales had been successful, a lack of focus on marketing of the materials was contributing to the shortfall between production and sales experienced in recent years. If RDOS is to reap the benefits of commitment to maximising organics diversion and investment in new processing infrastructure it will be important to ensure that there are staff resources made available to plan and implement targeted marketing to the different groups of existing and potential customers.

Discussions with municipal and District representatives have identified that there is currently no policy, standing orders or even informal encouragement for public sector bodies to use the compost products generated by their own facilities. By the same token there is also no current standard approach to specifying minimum usage levels of compost products in design specifications and contract works let by these bodies. A future area of discussion for the RD's Organics Working Group could be the means by which a consensus is built around these issues.

The RDOS has been successful at selling non-biosolids derived compost at the current rates of feedstock delivery. There is clearly some uncertainty regarding the potential to sell all of the material that could be created by a program that sought to maximize feedstock. While there is some degree of price sensitivity, the fact that the southern (biosolids–free) operations can sell everything they produce suggests that this part of the market may be able to accept some price increase. What is not yet understood is the extent to which there is potential for the traditional markets to accept significant additional volumes.

One approach to the broadening of markets for compost products is the development of a bagged product for direct sales to residents and small businesses. This approach has been successful in other jurisdictions and critical issues have been identified such as:

- A consistent and reliable network of outlets for the product via a mix of public sector facilities to which the public routinely have access as well as private retail outlets that are willing to locate the products alongside other similar materials;
- An effective marketing campaign which is sustained over time to target the key potential customers for the products;
- Where it is possible to do so, the non-biosolids-derived compost should be clearly labelled as achieving Certified Organic status; i.e. in this case, compliant with OMRI criteria.

We note that the City of Kelowna has not developed value-added products at this time. We agree that there are high risks associated with seeking to develop a range of specialist products, such as potting mix or fine screened mixes. This is because there is an unfavourable relationship between the costs of additional processing infrastructure and the benefits of additional sales volumes. However, it is our view that a simple bagging operation which provided a different route to market for the same materials which were already being provided to larger users on a wholesale basis, may be a useful way of significantly increasing sales volumes.

The RD could therefore in due course consider the issue of a Request for Expressions of Interest from the private sector, related specifically to the operation of a bagging service for a

guaranteed minimum volume of compost product. With the benefit of further market studies, this could progress to a formal RfP, in which the minimum volume of product was refined and price banding could be offered for additional volumes if supported by sales. Bagged products will always retail at a significantly higher mark-up in comparison with bulk product. The critical issue for a decision to proceed with a future initiative to introduce a bagging operation will be the scope that the additional mark-up provides to cover the additional bagging and transport costs.

4.0 WOOD CHIPS

Tetra Tech report that around 1,400 tonnes of wood waste were chipped and composted at Campbell Mountain Landfill in 2013. Wood waste is chipped at other sites and used in landfill cover, dust control and creation of unregulated compost for on-site use, but chipped unsegregated white wood cannot be used in compost production for off-site use. It is estimated that a total of 8,280 tonnes of wood waste is potentially available for future composting.

One of the respondents in our survey of winery/orchard operations felt that RDOS would have a difficult time increasing compost production as they have too much wood waste. This was based on the concept that wood waste equals carbon, which requires significant time, moisture and nitrogen to break down and unless the RD were able to fully compost a product, the end result would not be saleable as it would not suit the soil in vineyards/orchards. While we do not disagree with the science, we consider that this view is not consistent with a future scenario in which the majority of food waste is segregated and incorporated into the processing stream. As commented in Section 3.0 above, we believe it will be difficult to incorporate all of the theoretically available additional wood waste into future composting operations.

Discussions with site operators have identified that there is no formal segregation of different types of waste wood at the RDOS landfill sites. This means that any product generated from the wood waste must be classified as potentially contaminated, severely limiting its application. It may be unreasonable for the RD to expect customers to segregate their waste wood into clean and potentially contaminated (i.e. painted or treated) prior to or during delivery, but it is also the case that without such segregation volumes of wood waste will remain unmanageable.

We believe that it will be necessary to introduce a new approach to wood waste management at RDOS sites, on one of the following bases:

- Either, introduce a requirement for pre-sorting of all wood waste deliveries, with a surcharge for any unsorted loads which is sufficient to cover segregation by site staff;
- Or, provide sufficient staff resourcing to carry out effective segregation at site and increase tipping charges to ensure additional costs are recovered.

Given that there is likely to always be an excess of wood waste in comparison with the amendment requirements of composting operations, there is a need to develop further markets for receipt of chipped wood, if this material is to contribute to landfill diversion. It appears that the feedlot market is fairly well developed in the RD so this offers very limited opportunity.

The alternative is potential to sell into markets providing fuels for biomass boilers. This option will however require full segregation of contaminated wood which would not be an acceptable fuel, other than in a dedicated waste to energy facility. In order to be competitive, it would be necessary to offer clean woodchips at a price less than that offered in the local market. For guidance, a commercial woodchip provider in Oliver (The Chipping Block) sells woodchips for \$80 for 4yd^3 which at a typical density of 0.35t/m^3 is equivalent to a cost of \$76.20/tonne. This

firm also delivers woodchips to destinations between Penticton to Osoyoos for $47.60/tonne or to Summerland/Naramata for $71.44/tonne.

5.0 RECOMMENDATIONS

As a result of the findings of this review, we make the following recommendations for RDOS in respect of future management and marketing of organic materials.

1. Seek to work with a major private sector provider to grow and develop local compost markets;

2. Carefully monitor the progress of the BC MoE consultation process regarding changes to the OMRR;

3. Seek to build consensus between professionals working in organics in the public sector, regarding a move towards more formal specification of the use of compost products in public works and a requirement for contractors to use such materials wherever practically possible;

4. Ensure adequate staff resources are budgeted in future for the provision of education programs and marketing to support the growth of compost product sales;

4. Progress an RFEoI to private sector operators regarding the potential to develop a compost bagging operation, which can be further developed to the RfP stage, if indicative pricing appears viable;

5. Carry out a cost-benefit analysis regarding the introduction of a clean and contaminated wood segregation protocol at the RDOS landfill sites, including consideration of possible surcharges or increased tipping charges;

6. Review potential for marketing RDOS-derived woodchips into the local biomass fuels market.

7. Organic certification of food waste derived compost has the potential to increase value.

6.0 STATEMENT OF LIMITATIONS

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APPENDIX A

Summary of Survey of Wineries & Fruit Growers

Table 1

RDOS - Survey of wineries/fruit growers re organic waste management

Operation Name	Location/size	Contact Name	Type of Organic waste	Quantity	Compost on or off site	Use of public or private sector collection	Costs	Purchase of Compost	Cost	View on use of food waste and biosolids	Notes:
Desert Hills Winery	Oliver/70 acres	Randy Toor/Owner	Prunings	Unknown	On site, mulched in	n/a	n/a	No		None given	Landfill puts limits on amounts per visit. Owner complained and was able to make 3 trips rather than 5, to meet limits.
			Pomace	Approx 18 m^3	Off site	public landfill	$150		n/a		
Jackson Triggs Okanagan/ Constellation	Oliver/1000+ acres	Keith Gideon/Jordan Clark/Vineyard Managers	Prunings	unknown	On site, mulched in		Internal cost per business		Estimate of an internal cost $40,000 - $50,000 plus $20,000 actually purchased	Would consider food waste. Would not consider biosolids	Would buy compost from a municipal source if they needed more and it was cost effective. Engaged in environmentally friendly/organic projects and practices. Due to high cost of and specific nature of equipment to compost organically they organize off-site at present. Would not consider biosolids due to the industry
			Pomace	30-50 tonnes/year	Off site	Private - Southern Plus	arrangement with Southern Plus	Yes in Spring			
Hillside Orchards	Oliver/22 acres	Heidi Helv/Owner	Prunings	12 to 20 x 400lb bins yearly, varies.	On site goes to landfill, but not a significant	n/a Public landfill	n/a Unknown	No, generate enough on site each year	n/a	None given	Owner suggested that the North part of the RDOS would be different than the south as farming practices and lot sizes are different. Many owners are very suspicous of the RDOS, might be difficult to get people to respond.
8th Generation Winery	Summerland/20 acres	Stefanie Schales/Owner	Prunings	Unknown	On site, mulched in	n/a	n/a	Yes, manure from a private source	Unknown	Would not take food waste compost due to concerns attracting animals and rodents. Would not consider biosolids as they are registered organic.	This small winery is self contained for the most part.
			Pomace	16 tonnes/year	On site	n/a	n/a				
Hillside Winery	Penticton/12.5 acres owned. Bring in grapes	Kathy Malone/Winemaker	Prunings	Unknown	On site, mulched in	n/a	n/a	Yes	Free from Big Horn for their winery garden. Purchase 10 cubic yards @$30/yard from Big Horn each spring	Open to food waste in compost but wouldn't do it themselves. Nervous about biosolids on the vines	They use Earlco - a 3rd party vineyard management company. Nutrient make up of compost is important when deciding if they would use it in the vineyards.
			Pomace & yeast Lees	50-60 tonnes	Off site	Private - Big Horn contracting & Maple Leaf Distillery (Lees)	Free				
Perseus Winery	Penticton/100 acres 5 acres at Penticton winery	Craig - GM	Prunings	Unknown	On site, mulched in	n/a	n/a	No	n/a	Open to food waste in compost but wouldn't do it themselves. Would be reluctanct to purchase compost with biosolids	If they required compost they would potentially buy from the Penticton landfill if needed. Open to purchasing from a municipal source.
			Pomace	Unknown	On site, 3 of their	n/a	n/a				
Earlco Winery (and Vineyard Management company)	Naramata/7.5 acres plus160 acres managed for other wineries	John Lawrence/Owner	Prunings	unknown	on site,mulched in	n/a	n/a		Purchase @$30/yard from Big Horn; quantity unspecified.		First year in the winemaking business this past year, so limited experience to relate.
			Pomace	4-5 tonnes	off site	private - Big Horn	free	Yes, in Spring			

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