

2017 Kentucky Blackberry Cost and Return Estimates

FOR THORNY, THORNLESS ERECT, AND THORNLESS SEMI-ERECT BLACKBERRIES

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Yield and Returns

Blackberry returns are based on moderate, 1-acre yield estimates for each blackberry type. Yields may vary considerably due to production location and production practices. The yields used in this budget are based on the following planting assumptions:

Table 1. Planting assumptions by blackberry type.

Type	Planting	Yield
Thorny	1,815 plants; 2' x 12' spacing	Year 1—0 qt Year 2—800 qt Year 3—2,000 qt Year 4—3,000 qt Year 5—3,300 qt
Thornless Erect	1,588 plants; 2.5' x 12' spacing	Year 1—0 qt Year 2—800 qt Year 3—2,000 qt Year 4—4,250 qt Year 5—4,250 qt
Thornless Semi-Erect	454 plants; 8' x 12' spacing	Year 1—0 qt Year 2—2,000 qt Year 3—4,000 qt Year 4—6,000 qt Year 5—7,000 qt

Blackberry returns are calculated based on a price of \$4.50 per quart. This price falls in the low to mid-range of prices reported throughout Kentucky at produce auctions, farmers' markets, and on-farm stands during 2016 and 2017.

Establishment Costs

Blackberry enterprise cash flow will be negative until the crop has matured and generates returns to cover the cost of establishing the crop. Establishment costs will begin to be recovered in Year 3, with total payback occurring in Year 5. Although the return to land, labor, and management is greater for fully producing thornless erect and thornless semi-erect blackberries, the cost of establishment is greater because of the trellising systems necessary for higher-yielding thornless varieties. The larger yield for thornless

semi-erect varieties substantially offsets the cost of establishment, generating comparatively larger returns in Year 3.

Although thornless semi-erect varieties show superior longer-term economic returns in this analysis, producers should realize that thorny and thornless erect varieties have potential marketing advantages. Thorny and thornless erect varieties could command superior prices, resulting in higher returns than estimated here. Thorny varieties are the earliest producers with the smaller seeds. In addition, both thorny and thornless erect varieties are generally sweeter to taste with smaller seeds than most thornless semi-erect varieties. Producers may wish to combine plantings to cater to their buyers' preferences or marketing window.

Table 2. Variable and fixed costs, by year, by type.*

	Thorny	Thornless Erect	Thornless Semi-Erect
Year 1 (Preplant)			
Variable	\$401	\$401	\$401
Fixed	\$201	\$201	\$201
Total Costs	\$602	\$602	\$602
Year 2 (Planting)			
Variable	\$5,829	\$5,096	\$5,305
Fixed	\$411	\$413	\$411
Total Costs	\$6,239	\$5,509	\$5,716
Year 3 (First Fruiting Year)			
Variable	\$3,781	\$7,264	\$8,923
Fixed	\$1,809	\$1,534	\$1,525
Total Costs	\$5,590	\$8,799	\$10,448
Year 4 (Second Fruiting Year)			
Variable	\$5,851	\$6,003	\$7,446
Fixed	\$1,530	\$1,530	\$1,530
Total Costs	\$7,381	\$7,532	\$8,976
Year 5 (Third Fruiting Year)			
Variable	\$6,458	\$7,594	\$8,575
Fixed	\$1,531	\$1,525	\$1,524
Total Costs	\$7,989	\$9,119	\$10,099
Year 6 (Fourth Fruiting Year)			
Variable	\$6,639	\$7,102	\$9,175
Fixed	\$1,531	\$1,525	\$1,524
Total Costs	\$8,169	\$8,627	\$10,699

*All values in nominal (Year 1) dollars. Variable costs include interest costs. Fixed costs include land and taxes. Totals may differ slightly because of rounding.

Table 3. Estimated returns by blackberry type.

Type	3-Yr. Establishment Costs (less revenue from first fruiting year)	Return to Management (fourth fruiting Year)	5-Year Return Full Fruiting (through fourth fruiting year)
Thorny	\$8,831	\$6,681	\$4,981
Thornless Erect	\$11,310	\$10,498	\$11,384
Thornless Semi-Erect	\$7,766	\$20,801	\$38,961

Thornless semi-erect varieties offer the most potential for economic profits, primarily because of higher yields. However, thornless semi-erect blackberries ripen later during the summer. This makes thornless semi-erect varieties fully exposed to spotted wing drosophila infestations and requires the plantings be carefully monitored and sprayed at least weekly during harvest. Depending on management and production systems, this insect pressure could result in increased production risks and a possibility for higher percentages of unmarketable fruit. The initial cash outlays for an irrigation system and an 8' x 8' x 8' refrigeration unit (\$5,200 to \$9,200) in Year 3 must also be considered. Most operations considering blackberries as a cropping alternative may be able to use refrigeration investment for other crop enterprises, spreading fixed costs across more than one enterprise.

Pre-Harvest Costs

The following costs were assumed in the preparation of the 2017 Kentucky Blackberry Production Budgets.

Soil Tests. Assumed assay cost of \$10 per sample.

Fertilizer, Lime, Seed. Costs assigned using recommended rates and 2017 Ken-

tucky input costs.

Machinery and Equipment. Costs are calculated using a machinery cost calculator adjusted to appropriate fuel costs and equipment standards for Kentucky. Time assigned to each machinery operation comes from historical budget data and engineering standards for labor utilization by operation. Rental of post driver and planter is assumed.

Hired Labor. Labor charge of \$12.50 per hour for hired labor and \$15 per hour for operator labor is assumed in these estimates. Labor times are calculated combining equipment standards with horticultural production labor estimates for given operations.

Pesticides. Herbicide, insecticide, and fungicide costs are calculated using recommended rates and 2017 Kentucky input prices. These do not constitute recommendations for application method or products. Naming of pesticide products does not constitute an endorsement by the University of Kentucky or its Cooperative Extension Service.

Trellis. Trellising is required for erect and semi-erect blackberry varieties. A Double-T 4-wire trellis with metal wire, wooden fence posts, and wooden braces is assumed for the thornless semi-erect varieties. A Single-T 2-wire trellis is assumed for erect varieties.

Irrigation. An establishment cost of \$1,327 was estimated for a trickle irrigation system. An annual variable cost of \$248 is assigned for irrigation; this variable cost may fluctuate greatly due to water availability and cost.

Interest. An interest rate of 5% is assumed on preharvest variable costs. Interest expense for establishment costs is accounted for in the fixed costs (see below).

Harvest Costs

Containers. Containers are assumed to be 1-quart, ventilated, plastic clamshells



Figure 1. A Double-T 4-wire trellis with metal wire, wooden fence posts, and wooden braces works well for thornless semi-erect blackberry varieties.



Figure 2. A Single-T 2-wire trellis may be used with erect blackberry varieties.
Photos by John Strang

with absorbent padding in the bottom. A cost of \$0.15 per container, based on current retail prices, is assigned.

Refrigeration. Refrigeration is essential for berry production. A \$1.22 charge for electricity per day is assigned, based on historic average usage and rates for an 8' x 8' x 8' cooling unit.

Marketing. A marketing charge of 10% of gross sales is assumed in this system. This expense may vary depending on where and how blackberries are marketed. Components of this cost can include transportation mileage to market, labor costs for manning a farmers market or on-farm stand, sales commissions and other marketing-related charges.

Fixed Costs

Machinery and Equipment. Fixed costs for machinery and equipment are calculated using average repair and maintenance standards adjusted for Kentucky.

Irrigation. An annual fixed cost of \$248

per use is assigned to this 1-acre system.

Refrigeration. Refrigeration is essential for berry production. An 8' x 8' x 8' cooling unit is assumed in these budgets, with a fixed cost depreciation value of \$1,100 per year. This is based on a \$7,700 cost for purchase and installation as well as annual maintenance costs for the system. All these costs are assigned to the blackberry enterprise. Production of other berries or vegetables whose harvest times fall outside the blackberry harvest window can help a producer more efficiently utilize such a system. Smaller systems may also be feasible for use in blackberry production, resulting in a lower fixed cost.

Interest on Previous Years' Expense. Interest is calculated for establishment costs not yet able to be repaid at a 5% annual rate.

Land. A rental rate of \$150 per acre and real estate taxes of \$10 per acre for the land used in blackberry production is assumed.

Table 4. Soil buildup year in preparation for planting thorny blackberries, Kentucky, 2017.

Grass seeding																
Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
Soil test	0.6	\$15.00	\$9.00				\$-		\$-	Soil Test	2	assay	\$10.00	\$20.00	\$29.00	\$29.00
Lime (applied)	0.2	\$15.00	\$3.00	Disk	1	\$6.01	\$6.01	\$6.55	\$6.55	Lime: Ton	2	tons	\$20.00	\$40.00	\$49.01	\$55.56
Weed spray	0.08	\$15.00	\$1.20	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Glyphosate	2	qts	\$3.40	\$6.80	\$9.47	\$12.47
Chisel Plow	0.16	\$15.00	\$2.40	Chisel Plow	1	\$5.20	\$5.20	\$3.44	\$3.44					\$-	\$7.60	\$11.04
Disk (2)	0.2	\$15.00	\$3.00	Disk	2	\$6.01	\$12.02	\$6.55	\$13.10					\$-	\$15.02	\$28.12
Seed Grass	0.18	\$15.00	\$2.70	Grain Drill	1	\$4.08	\$4.08	\$9.85	\$9.85	Seed	10	lbs	\$2.35	\$23.50	\$30.28	\$40.13
Apply Fertilizer	0.4	\$15.00	\$6.00	Spreader	2	\$2.21	\$4.42	\$2.66	\$5.32	Fertilizer	800	lbs	\$0.30	\$240.00	\$250.42	\$255.74
Interest on variable costs (1/2 year)															\$9.77	\$9.77
Totals	1.82		\$27.30			\$24.98	\$33.20		\$41.26					\$330.30	\$400.57	\$441.83

Table 5. Planting year for 1 acre of thorny blackberries, Kentucky, 2017.

2 x 12' Spacing																
Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
March																
Herbicide Burndown	0.8	\$15.00	\$12.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Glyphosate	1	qt	\$3.40	\$3.40	\$16.87	\$19.87
Fertilizer	1.5	\$15.00	\$22.50	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	50	lbs	\$0.40	\$20.00	\$44.71	\$47.37
Plant	4	\$12.50	\$50.00	Transplanter	1	\$75.00	\$75.00	\$-	\$-	Plants	1815	plants	2.25	\$4,083.75	\$4,208.75	\$4,208.75
Herbicide Spray	0.8	\$15.00	\$12.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Gallery DF	0.33	lb	\$148.00	\$48.84	\$62.31	\$65.31
April																
Hoeing	10.0	\$12.50	\$125.00				\$-		\$-						\$125.00	\$125.00
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
May																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10	\$12.50	\$125.00				\$-		\$-						\$125.00	\$125.00
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	\$35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-		\$-	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$18.20	\$18.20
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
June																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10	\$12.50	\$125.00				\$-		\$-						\$125.00	\$125.00
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.275	\$19.25	\$22.25
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10.0	\$12.50	\$125.00				\$-		\$-						\$125.00	\$125.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
August																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10.0	\$12.50	\$125.00				\$-		\$-						\$125.00	\$125.00
Interest on variable costs (1/2 year)															\$141.43	\$141.43
Totals	68.3		\$889.50			\$361.90	\$250.66							\$4,405.71	\$5,798.54	\$6,049.20

Table 6. Fruiting year for 1 acre of established thorny blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
March																
Pruning	20.0	\$12.50	\$250.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00						\$254.00	\$256.00
Nitrogen	0.3	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
Cane removal	4.0	\$12.50	\$50.00	Wagon	1	\$3.88	\$3.88	\$4.43	\$4.43					\$-	\$53.88	\$58.31
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulforix	3	gal	\$22.00	66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Cane tipping	5.0	\$12.50	\$62.50				\$-	\$-	\$-					\$-	\$62.50	\$62.50
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$71.47
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
July																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Insect Control	1.0	\$15.00	\$15.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	5	oz	\$9.23	\$46.15	\$64.09	\$70.09
Insect Control	1.0	\$15.00	\$15.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$31.74	\$37.74
Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$23.13	\$28.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Irrigation	0.1	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
September																
Fertilize grass	0.3	15	4.5	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$39.90	\$39.90
Pre-Harvest Totals	65.8		854.5						\$274.25						\$1,635.87	\$1,910.12
HARVESTING																
Total quantity harvested				800	qts	\$4.50										
Picking	100.0	12.5	\$1,250.00												\$1,250.00	\$1,250.00
Clamshells										800	clamshells	\$0.150	\$120.00	\$120.00	\$120.00	\$120.00
Refrigeration				30		\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										800	quarts	\$0.45	\$360.00	\$396.60	\$396.60	\$396.60
Harvest Totals	100.0		\$1,250.00				\$36.60		\$1,374.25						\$1,803.20	\$2,903.20
Totals	165.8		\$2,104.50						\$1,648.50						\$3,439.07	\$4,813.32

Table 7. Second fruiting year for 1 acre of established thorny blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	20	\$12.50	\$250.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00					\$-	\$254.00	\$256.00
Cane removal	0.6	\$15.00	\$9.00											\$-	\$9.00	\$9.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Cane tipping	5.0	\$12.50	\$62.50				\$-	\$-	\$-					\$-	\$62.50	\$62.50
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$71.47
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
July																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Insect Control	2.0	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	5	oz	\$9.23	\$46.15	\$79.09	\$85.09
Insect Control	3.0	\$15.00	\$45.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$61.74	\$67.74
Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$23.13	\$28.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
November																
Fertilize grass	0.3	15	4.5	Spreader	1	2.21	2.21	2.66	2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$39.90	\$39.90
Pre-Harvest Totals	65.4		\$858.50						\$269.82						\$1,636.00	\$1,905.82
HARVESTING																
Total quantity harvested				2000	qts	\$4.50										
Picking	200.0	12.5	\$2,500.00												\$2,500.00	\$2,500.00
Clamshells										2000	clamshells	\$0.150	\$300.00	\$300.00	\$300.00	
Refrigeration					30	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										2000	quarts	\$0.45	\$900.00	\$936.60	\$936.60	
Harvest Totals	200		\$2,500.00				\$36.60		\$1,100.00						\$3,773.20	\$4,873.20
Totals	265.4		\$3,358.50						\$1,369.82						\$5,409.20	\$6,779.02

Table 8 . Third fruiting year for 1 acre of established thorny blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	30	\$12.50	\$375.00	Pruner	30	\$0.20	\$6.00	\$0.10	\$3.00					\$-	\$381.00	\$384.00
Cane removal	1	\$15.00	\$15.00											\$-	\$15.00	\$15.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulforix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Cane tipping	5.0	\$12.50	\$62.50				\$-		\$-					\$-	\$62.50	\$62.50
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$71.47
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
July																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Insect Control	2.0	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	5	oz	\$9.23	\$46.15	\$79.09	\$85.09
Insect Control	3.0	\$15.00	\$45.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$61.74	\$67.74
Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$23.13	\$28.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
November																
Fertilize grass	0.3	15	4.5	Spreader	1	2.21	2.21	2.66	2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$43.23	\$43.23
Pre-Harvest Totals	75.8		\$989.50						\$270.82						\$1,772.32	\$2,043.14
HARVESTING																
Total quantity harvested				3000	qts	\$4.50										
Picking	225.0	12.5	\$2,812.50												\$2,812.50	\$2,812.50
Clamshells										3000	clamshells	\$0.150	\$450.00	\$450.00	\$450.00	\$450.00
Refrigeration				30		\$1.22	\$36.60	\$1,100.00	\$1,100.00					\$36.60	\$1,136.60	\$1,136.60
Marketing										3000	quarts	\$0.45	\$1,350.00	\$1,386.60	\$1,386.60	\$1,386.60
Harvest Totals	225		\$2,812.50						\$1,100.00					\$4,685.70	\$5,785.70	
Totals	300.8		\$3,802.00						\$1,370.82					\$6,458.02	\$7,828.84	

Table 9. Fourth fruiting year for 1 acre of established thorny blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	30	\$12.50	\$375.00	Pruner	30	\$0.20	\$6.00	\$0.10	\$3.00					\$-	\$381.00	\$384.00
Cane removal	1	\$15.00	\$15.00											\$-	\$15.00	\$15.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulforix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	\$35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Cane tipping	5.0	\$12.50	\$62.50				\$-	\$-	\$-					\$-	\$62.50	\$62.50
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$71.47
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
July																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Insect Control	2.0	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	5	oz	\$9.23	\$46.15	\$79.09	\$85.09
Insect Control	3.0	\$15.00	\$45.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$61.74	\$67.74
Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$23.13	\$28.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
November																
Fertilize grass	0.3	15	4.5	Spreader	1	2.21	2.21	2.66	2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$43.23	\$43.23
Pre-Harvest Totals	75.8		\$989.50						\$270.82						\$1,772.32	\$2,043.14
HARVESTING																
Total quantity harvested				3300	qts	\$4.50										
Picking	225.0	12.5	\$2,812.50												\$2,812.50	\$2,812.50
Clamshells										3300	clamshells	\$0.150	\$495.00	\$495.00	\$495.00	\$495.00
Refrigeration					1	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										3300	quarts	\$0.45	\$1,485.00	\$1,521.60	\$1,521.60	\$1,521.60
Harvest Totals	225		\$2,812.50				\$36.60		\$1,100.00						\$4,865.70	\$5,965.70
Totals	300.8		\$3,802.00						\$1,370.82						\$6,638.02	\$8,008.84

Table 10. Establishment cost for 1 acre of thorny blackberries, Kentucky, 2017.

Soil Buildup Year		Cost/Acre	Second Fruiting Year		Cost/Acre	Fourth Fruiting Year (breakeven)		Cost/Acre
Variable costs		\$400.57	Variable costs		\$5,409.20	Variable costs		\$6,638.02
Fixed costs		\$41.26	Fixed costs		\$1,369.82	Fixed costs		\$1,370.82
Cost of land and taxes		\$160.00	Cost of land and taxes		\$160.00	Cost of land and taxes		\$160.00
Total soil buildup year		\$601.83	Interest on accrued establishment costs (9%)		\$441.54	Total costs, fourth fruiting year		\$8,168.84
Accrued establishment costs		\$601.83	Total costs, second fruiting year		\$7,380.55	Total revenue, fourth fruiting year		\$14,850.00
Planting Year		Cost/Acre	Total revenue, second fruiting year		\$9,000.00	Total return, fourth fruiting year		\$6,681.16
Variable costs		\$5,798.54	Total return, second fruiting year		\$1,619.45	Five-year return to management		\$4,981.01
Fixed costs		\$250.66	Accrued establishment costs through second fruiting		\$7,211.31			
Cost of land and taxes		\$160.00	Third Fruiting Year		Cost/Acre			
Interest on soil buildup year costs (5%)		\$30.09	Variable costs		\$6,458.02			
Total planting year		\$6,239.29	Fixed costs		\$1,370.82			
Accrued establishment costs through planting		\$6,841.12	Cost of land and taxes		\$160.00			
First Fruiting Year		Cost/Acre	Total costs, third fruiting year		\$7,988.84			
Variable costs		\$3,439.07	Total revenue, third fruiting year		\$13,500.00			
Fixed costs		\$1,648.50	Total return, third fruiting year		\$5,511.16			
Cost of land and taxes		\$160.00	Accrued establishment costs through third fruiting		\$1,700.15			
Interest on accrued establishment costs (5%)		\$342.06						
Total costs, first fruiting year		\$5,589.63						
Total revenue, first fruiting year		\$3,600.00						
Total return, first fruiting year		\$(1,989.63)						
Accrued establishment costs through first fruiting		\$12,430.75						
Total establishment cost (less year 3 revenue)		\$8,830.75						

Table 11. Soil buildup year in preparation for planting thornless erect blackberries, Kentucky, 2017.

Grass Seeding																
Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
Soil test	0.6	\$15.00	\$9.00				\$-		\$-	Soil Test	2	assay	\$10.00	\$20.00	\$29.00	\$29.00
Lime (applied)	0.2	\$15.00	\$3.00	Disk	1	\$6.01	\$6.01	\$6.55	\$6.55	Lime: Ton	2	tons	\$20.00	\$40.00	\$49.01	\$55.56
Weed spray	0.08	\$15.00	\$1.20	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Glyphosate	2	qts	\$3.40	\$6.80	\$9.47	\$12.47
Chisel plow	0.16	\$15.00	\$2.40	Chisel Plow	1	\$5.20	\$5.20	\$3.44	\$3.44					\$-	\$7.60	\$11.04
Disk (2)	0.2	\$15.00	\$3.00	Disk	2	\$6.01	\$12.02	\$6.55	\$13.10						\$15.02	\$28.12
Seed grass	0.18	\$15.00	\$2.70	Grain Drill	1	\$4.08	\$4.08	\$9.85	\$9.85	Seed	10	lbs	\$2.35	\$23.50	\$30.28	\$40.13
Apply fertilizer	0.4	\$15.00	\$6.00	Spreader	2	\$2.21	\$4.42	\$2.66	\$5.32	Bulk Fertilizer	800	lbs	\$0.30	\$240.00	\$250.42	\$255.74
Interest on variable costs (1/2 year)															\$9.77	\$9.77
Totals	1.82		\$27.30			\$24.98	\$33.20		\$41.26					\$330.30	\$400.57	\$432.06

Table 12. Planting year for 1 acre of thornless erect blackberries, Kentucky, 2017.

2.5'x12' spacing

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
March																
Herbicide Burndown	0.8	\$15.00	\$12.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Glyphosate	1	qt	\$3.40	\$3.40	\$16.87	\$19.87
Fertilizer	1.5	\$15.00	\$22.50	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	50	lbs	\$0.40	\$20.00	\$44.71	\$47.37
Plant	4	\$12.50	\$50.00	Transplanter	1	\$75.00	\$75.00	\$-	\$-	Blackberry Plants	1588	plants	\$2.25	\$3,573.00	\$3,698.00	\$3,698.00
Herbicide Spray	0.8	\$15.00	\$12.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Gallery	0.33	lb	\$148.00	\$48.84	\$62.31	\$65.31
April																
Hoeing	10.0	\$12.50	\$125.00											\$-	\$125.00	\$125.00
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	3	lb	\$7.28	\$18.20	\$27.17	\$30.17
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50					\$-	\$62.75	\$110.25
May																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$27.63	\$33.13
Fertilizer	1.5	\$15.00	\$22.50	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	50	lbs	\$0.40	\$20.00	\$44.71	\$47.37
Hoeing	10	\$12.50	\$125.00											\$-	\$125.00	\$125.00
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	\$15.40	oz	\$2.32	\$35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	3	lb	\$7.28	\$18.20	\$18.20	\$18.20
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
June																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10	\$12.50	\$125.00												\$125.00	\$125.00
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	\$2.50	oz	\$4.11	\$10.28	\$19.25	\$22.25
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50					\$-	\$62.75	\$110.25
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	3	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10.0	\$12.50	\$125.00												\$125.00	\$125.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
August																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10.0	\$12.50	\$125.00												\$125.00	\$125.00
Interest on variable costs (1/2 year)															\$25.96	\$25.96
Totals	69.8		\$912				\$364.11		\$253.32					\$3,914.96	\$5,066.07	\$5,319.39

Table 13. First fruiting year for 1 acre of established thornless erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
March																
Pruning	20.0	\$12.50	\$250.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00						\$254.00	\$256.00
Nitrogen	0.3	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
Cane Removal	4.0	\$12.50	\$50.00	Wagon	1	\$3.88	\$3.88	\$4.43	\$4.43					\$-	\$53.88	\$58.31
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	\$35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Trellising	60	\$12.50	\$750.00	Post Driver Rent	1	\$50.00	\$50.00	\$-	\$-	Wooden fence posts	182	posts	\$6.25	\$1,137.50	\$1,937.50	\$1,937.50
										Crossarms & Hardware	182	3' crossarms	\$3.00	\$546.00	\$546.00	\$546.00
										8700 ft. wire	34	roll	\$18.75	\$637.50	\$637.50	\$637.50
										Trellis hardware	1	acre	\$254.00	\$254.00	\$254.00	\$254.00
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	2.0	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	10	oz	\$9.23	\$92.31	\$125.25	\$131.25
Insect Control	2	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	24	oz	\$1.15	\$27.60	\$60.54	\$66.54
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$23.13	\$28.63
Cane tipping	5.0	\$15.00	\$75.00											\$-	\$75.00	\$75.00
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.1	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
September																
Irrigation	0.1	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Fertilize grass	0.3	\$15.00	\$4.50	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$112.55	\$112.55
Pre-Harvest Totals																
	126.8		\$1,632.00						\$274.25						\$5,155.71	\$5,429.96
HARVESTING																
Total quantity harvested				800	qts	\$4.50										
Picking	100.0	\$12.50	\$1,250.00												\$1,250.00	\$1,250.00
Clamshells										800	clamshells	0.15	120	\$120.00	\$120.00	
Refrigeration					30	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										800	quarts	\$0.45	\$360.00	\$396.60	\$396.60	
Harvest Totals	100		\$1,250.00				\$36.60		\$1,100.00						\$1,803.20	\$2,903.20
Totals	226.8		\$1,250.00						\$1,374.25						\$6,958.91	\$8,333.16

Table 14. Second fruiting year for 1 acre of established thornless erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	20	\$12.50	\$250.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00					\$-	\$254.00	\$256.00
Cane removal	0.6	\$15.00	\$9.00											\$-	\$9.00	\$9.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulforix	3	gal	\$22.00	66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	2.0	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	10	oz	\$9.23	\$92.31	\$125.25	\$131.25
Insect Control	2	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	24	oz	\$1.15	\$27.60	\$60.54	\$66.54
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Cane Removal/ Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$23.13	\$28.63
Cane tipping	5	\$15.00	\$75.00												\$75.00	\$75.00
Hoeing	8	\$12.50	\$100.00												\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33						\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$14.13	\$19.63
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33						\$83.42	\$146.75
November																
Fertilize grass	0.3	\$15.00	\$4.50	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$40.58	\$40.58
Pre-Harvest Totals																
	63.4		\$841.00						\$269.82						\$1,663.86	\$1,933.68
HARVESTING																
Total quantity harvested				2000	qts	\$4.50										
Picking	200.0	\$12.50	\$2,500.00												\$2,500.00	\$2,500.00
Clamshells										2000	clamshells	\$0.15	\$300.00	\$300.00	\$300.00	\$300.00
Refrigeration					30	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										2000	quarts	\$0.45	\$900.00	\$936.60	\$936.60	\$936.60
Harvest Totals	200		\$2,500.00				\$36.60		\$1,100.00						\$3,773.20	\$4,873.20
Totals	263.4		\$3,341.00						\$1,369.82						\$5,437.06	\$6,806.88

Table 15. Third fruiting year for 1 acre of established thornless erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	30	\$12.50	\$375.00	Pruner	30	\$0.20	\$6.00	\$0.10	\$3.00					\$-	\$381.00	\$384.00
Brush Removal	1	\$15.00	\$15.00											\$-	\$15.00	\$15.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	2.0	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	10	oz	\$9.23	\$92.31	\$125.25	\$131.25
Insect Control	2	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	24	oz	\$1.15	27.60	\$60.54	\$66.54
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Cane tipping	5	\$15.00	\$75.00											\$-	\$75.00	\$75.00
Irrigation	0.05	\$10.00	\$0.50	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.17	\$146.50
August																
Mowing	0.6	\$7.00	\$4.20	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$9.33	\$14.83
Irrigation	0.05	\$10.00	\$0.50	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.17	\$146.50
November																
Fertilize grass	0.3	\$7.00	\$2.10	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	20	lbs	\$0.40	\$8.00	\$12.31	14.97
Interest on variable costs (1/2 year)															\$40.64	\$40.64
Pre-Harvest Totals	64.6		\$846.30						\$265.32						\$1,666.08	1931.40491
HARVESTING																
Total quantity harvested				4250	qts	\$4.50										
Picking	225.0	\$12.50	\$2,812.50												\$2,812.50	\$2,812.50
Clamshells										4250	clamshells	0.15	637.5	\$637.50	\$637.50	
Refrigeration					30	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										4250	quarts	\$0.45	\$1,912.50	\$1,949.10	\$1,949.10	
Harvest Totals	225		\$2,812.50				\$36.60		\$1,100.00						\$5,435.70	\$6,535.70
Totals	289.6		\$3,658.80						\$1,365.32						\$7,101.78	\$8,467.10

Table 16. Fourth fruiting year for 1 acre of established thornless erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	30	\$12.50	\$375.00	Pruner	30	\$0.20	\$6.00	\$0.10	\$3.00					\$-	\$381.00	\$384.00
Brush Removal	1	\$15.00	\$15.00											\$-	\$15.00	\$15.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Disease Mgt			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
June																
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	2.0	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Delegate	10	oz	\$9.23	\$92.31	\$125.25	\$131.25
Insect Control	2	\$15.00	\$30.00	Sprayer	2	\$1.47	\$2.94	\$3.00	\$6.00	Mustang Maxx	24	oz	\$1.15	\$27.60	\$60.54	\$66.54
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Disease Mgt	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Cane tipping	5	\$15.00	\$75.00											\$-	\$75.00	\$75.00
Irrigation	0.05	\$10.00	\$0.50	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.17	\$146.50
August																
Mowing	0.6	\$7.00	\$4.20	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$9.33	\$14.83
Irrigation	0.05	\$10.00	\$0.50	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.17	\$146.50
November																
Fertilize grass	0.3	\$7.00	\$2.10	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	20	lbs	\$0.40	\$8.00	\$12.31	14.97
Interest on variable costs (1/2 year)															\$40.64	\$40.64
Pre-Harvest Totals	64.6		\$846.30						\$265.32						\$1,666.08	\$1,931.40
HARVESTING																
Total quantity harvested				4250	qts	\$4.50										
Picking	225.0	\$12.50	\$2,812.50												\$2,812.50	\$2,812.50
Clamshells											4250	clamshells	0.15	637.5	\$637.50	\$637.50
Refrigeration					30	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing											4250	quarts	\$0.45	\$1,912.50	\$1,949.10	\$1,949.10
Harvest Totals	225		\$2,812.50				\$36.60		\$1,100.00						\$5,435.70	\$6,535.70
Totals	289.6		\$3,658.80						\$1,365.32						\$7,101.78	\$8,467.10

Table 17. Establishment cost for 1 acre of thornless erect blackberries, Kentucky, 2017.

Soil Buildup Year		Cost/Acre	First Fruiting Year		Cost/Acre	Third Fruiting Year (breakeven)		Cost/Acre
Variable costs		\$400.57	Variable costs		\$6,958.91	Variable costs		\$7,101.78
Fixed costs		\$41.26	Fixed costs		\$1,374.25	Fixed costs		\$1,365.32
Cost of land and taxes		\$160.00	Cost of land and taxes		\$160.00	Cost of land and taxes		\$160.00
Total soil buildup year		\$601.83	Interest on accrued establishment costs (5%)		\$305.57	Interest on accrued establishment costs (5%)		\$492.12
Accrued establishment costs		\$601.83	Total costs, first fruiting year		\$8,798.73	Total costs, third fruiting year		\$9,119.23
Planting Year		Cost/Acre	Total revenue, first fruiting year		\$3,600.00	Total revenue, third fruiting year		\$19,125.00
Variable costs		\$5,066.07	Total return, first fruiting year		\$(5,198.73)	Total return, third fruiting year		\$10,005.77
Fixed costs		\$253.32	Accrued establishment costs through first fruiting		\$14,910.04	Accrued establishment costs through third fruiting		\$-
Cost of land and taxes		\$160.00	Total establishment cost (less year 3 revenue)		\$11,310.04	Fourth Fruiting Year		Cost/Acre
Interest on soil buildup year costs (5%)		\$30.09	Second Fruiting Year		Cost/Acre	Variable costs		\$7,101.78
Total planting year		\$5,509.48	Variable costs		\$5,437.06	Fixed costs		\$1,365.32
Accrued establishment costs through planting		\$6,111.31	Fixed costs		\$1,369.82	Cost of land and taxes		\$160.00
			Cost of land and taxes		\$160.00	Interest on accrued establishment costs (5%)		\$-
			Interest on accrued establishment costs (5%)		\$565.50	Total costs, fourth fruiting year		\$8,627.10
			Total costs, second fruiting year		\$7,532.38	Total revenue, fourth fruiting year		\$19,125.00
			Total revenue, second fruiting year		\$9,000.00	Total return, fourth fruiting year		\$10,497.90
			Total return, second fruiting year		\$1,467.62	Five-year return to management		\$11,384.44
			Accrued establishment costs through second fruiting		\$9,842.42			

Table 18. Soil buildup year in preparation for planting thornless semi-erect blackberries, Kentucky, 2017.

Grass Seeding																
Operation	Labor			Machinery & Equipment					Materials					Total Var. Cost	Total Cost	
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit			Cost/Acre
Soil test	0.6	\$15.00	\$9.00				\$-		\$-	Soil Test	2	assay	10	\$20.00	\$29.00	\$29.00
Lime (applied)	0.2	\$15.00	\$3.00	Disk	1	\$6.01	\$6.01	\$6.55	\$6.55	Lime: Ton	2	tons	20	\$40.00	\$49.01	\$55.56
Weed spray	0.08	\$15.00	\$1.20	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Glyphosate	2	qts	3.4	\$6.80	\$9.47	\$12.47
Chisel Plow	0.16	\$15.00	\$2.40	Chisel Plow	1	\$5.20	\$5.20	\$3.44	\$3.44					\$-	\$7.60	\$11.04
Disk (2)	0.2	\$15.00	\$3.00	Disk	2	\$6.01	\$12.02	\$6.55	\$13.10					\$-	\$15.02	\$28.12
Seed Grass	0.18	\$15.00	\$2.70	Grain Drill	1	\$4.08	\$4.08	\$9.85	\$9.85	Seed	10	lbs	2.35	\$23.50	\$30.28	\$40.13
Apply Fertilizer	0.4	\$15.00	\$6.00	Spreader	2	\$2.21	\$4.42	\$2.66	\$5.32	Bulk Fertilizer	800	lbs	\$0.30	\$240.00	\$250.42	\$255.74
Interest on variable costs (1/2 year)															\$9.77	\$9.77
Totals	1.82		\$27.30			\$24.98	\$33.20		\$41.26					\$330.30	\$400.57	\$432.06

Table 19. Planting year for 1 acre of thornless semi-erect blackberries, Kentucky, 2017.

8' x 12'																
Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
March																
Herbicide Burndown	0.8	\$15.00	\$12.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Glyphosate	1	qt	\$3.40	\$3.40	\$16.87	\$19.87
Plant	4	\$12.50	\$50.00	Transplanter	1	\$75.00	\$75.00	\$-	\$-	Blackberry Plants	1588	plants	\$2.25	\$3,573.00	\$3,698.00	\$3,698.00
Herbicide Spray	0.8	\$15.00	\$12.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Gallery	0.33	lb	\$148.00	\$48.84	\$62.31	\$65.31
April																
Hoeing	10.0	\$12.50	\$125.00												\$125.00	\$125.00
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulforix	3	gal	\$22.00	66.00	\$74.97	\$77.97
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	3	lb	\$7.28	\$18.20	\$27.17	\$30.17
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
May																
Fertilizer	1.5	\$15.00	\$22.50	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	50	lbs	\$0.40	20.00	\$44.71	\$47.37
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10	\$12.50	\$125.00												\$125.00	\$125.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50						\$62.75	\$110.25
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	\$15.40	oz	\$2.32	35.728	\$44.70	\$47.70
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	3	oz	\$4.11	\$10.28	\$19.25	\$22.25
Fungicide			\$-				\$-	\$-	\$-	Captan 80WDG	3	lb	\$7.28	\$18.20	\$18.20	\$18.20
June																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10	\$12.50	\$125.00											0.00	\$125.00	\$125.00
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	\$2.50	oz	\$4.11	10.275	\$19.25	\$22.25
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50					\$-	\$62.75	\$110.25
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	52.00	\$68.47	\$74.47
July																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	3	oz	4.11	\$10.28	\$19.25	\$22.25
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10.0	\$12.50	\$125.00											0.00	\$125.00	\$125.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$62.00	\$62.00	\$47.50	\$47.50					0.00	\$62.75	\$110.25
August																
Mowing	1.5	\$15.00	\$22.50	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50						\$27.63	\$33.13
Hoeing	10.0	\$12.50	\$125.00											0	\$125.00	\$125.00
Interest on variable costs (1/2 year)															\$128.66	\$128.66
Totals	68.3		\$889.50				\$361.90		\$250.66					\$3,894.96	\$5,275.02	\$5,525.68

Table 20. First fruiting year for 1 acre of established thornless semi-erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
March																
Pruning	20.0	\$12.50	\$250.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00						\$254.00	\$256.00
Nitrogen	0.3	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
Cane removal	4.0	\$12.50	\$50.00	Wagon	1	\$3.88	\$3.88	\$4.43	\$4.43					\$-	\$53.88	\$58.31
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	66.00	\$74.97	\$77.97
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					0.00	\$14.13	\$19.63
May																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Fungicide			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Trellising	80	\$12.50	\$1,000.00	Post Driver Rent	1	\$50.00	\$50.00	\$-	\$-	Wooden fence posts	182	posts	\$6.25	\$1,137.50	\$2,187.50	\$2,187.50
										Crossarms & Hardware	182	3' crossarms	\$3.00	\$546.00	\$546.00	\$546.00
										Crossarms & Hardware	182	2' crossarms	\$2.00	\$364.00	\$364.00	\$364.00
			\$-							17000 ft. wire	68	roll	\$18.75	\$1,275.00	\$1,275.00	\$1,275.00
			\$-							Trellis hardware	1	acre	\$254.00	\$254.00	\$254.00	\$254.00
June																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8.0	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	13.80	\$30.27	\$33.27
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$23.13	\$28.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.1	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	13.8	30.27	33.27
Irrigation	0.05	15	0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
September																
Fertilize grass	0.3	15	4.5	Spreader	1	2.21	2.21	2.66	2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$143.00	\$143.00
Pre-Harvest Totals	117.6		\$1,503.25						\$265.16						\$5,958.82	\$6,223.98
HARVESTING																
Total quantity harvested				2000	qts	\$4.50										
Picking	110.0	\$12.50	\$1,375.00												\$1,375.00	\$1,375.00
Clamshells										2000	clamshells	\$0.15	\$300.00	\$300.00	\$300.00	\$300.00
Refrigeration					30	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										2000	quarts	\$0.45	\$900.00	\$936.60	\$936.60	\$936.60
Harvest Totals	110.0		\$1,375.00				\$36.60		\$1,100.00						\$2,648.20	\$3,748.20
Totals	227.55		\$2,878.25						\$1,365.16						\$8,607.02	\$9,972.18

Table 21. Second fruiting year for 1 acre of established thornless semi-erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	20	\$12.50	\$250.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00					\$-	\$254.00	\$256.00
Cane removal	0.6	\$15.00	\$9.00											\$-	\$9.00	\$9.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	\$35.73	\$44.70	\$47.70
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Fungicide			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
June																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Brush Removal/ Mowing	1.2	\$15.00	\$18.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$23.13	\$28.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
Irrigation	0.05	15	0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
November																
Fertilize grass	0.3	15	4.5	Spreader	1	2.21	2.21	2.66	2.66	Urea	20	lbs	\$0.40	8	14.71	\$17.37
Interest on variable costs (1/2 year)															\$36.31	\$36.31
Pre-Harvest Totals	58.4		\$766.00						\$269.82						\$1,584.59	\$1,854.41
HARVESTING																
Total quantity harvested				4000	qts											
Picking	240.0	\$12.50	\$3,000.00												\$3,000.00	\$3,000.00
Clamshells										4000	clamshells	\$0.15	\$600.00	\$600.00	\$600.00	\$600.00
Refrigeration					1	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing										4000	quarts	\$0.45	\$1,800.00	\$1,836.60	\$1,836.60	\$1,836.60
Harvest Totals	240.0		\$3,000.00				\$36.60		\$1,100.00						\$5,473.20	\$6,573.20
Totals	298.4		\$3,766.00						\$1,369.82						\$7,057.79	\$8,427.61

Table 22. Third fruiting year for 1 acre of established thornless semi-erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Acre	Equipment	Hrs or Acres of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Acre		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	30	\$12.50	\$375.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00					\$-	\$379.00	\$381.00
Cane removal	0.6	\$15.00	\$9.00											\$-	\$9.00	\$9.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulforix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	35.73	\$44.70	\$47.70
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Fungicide			\$-				\$-	\$-	\$-	Captan 80WDG	2.5	lb	\$7.28	18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
June																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoeing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	33.27
Irrigation	0.05	15	0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
November																
Fertilize grass	0.3	15	4.5	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$38.75	\$38.75
Pre-Harvest Totals	59.2		\$773.00						\$264.32						\$1,588.90	\$1,853.22
HARVESTING																
Total quantity harvested				6000	qts											
Picking	265.0	\$12.50	\$3,312.50												\$3,312.50	\$3,312.50
Clamshells										6000	clamshell	\$0.15	\$900.00	\$900.00	\$900.00	
Refrigeration					1	\$1.22	\$36.60	\$1,100.00	\$1,100.00					\$36.60	\$1,136.60	
Marketing										6000	quarts	\$0.45	\$2,700.00	\$2,736.60	\$2,736.60	
Harvest Totals	265.0		\$3,312.50				\$36.60		\$1,100.00					\$6,985.70	\$8,085.70	
Totals	324.2		\$4,085.50						\$1,364.32					\$8,574.60	\$9,938.92	

Table 23. Fourth fruiting year for 1 acre of established thornless semi-erect blackberries, Kentucky, 2017.

Operation	Labor			Machinery & Equipment						Materials					Total Var. Cost	Total Cost
	Labor (hr)	Wage Rate	Cost/Ac	Equipment	Hrs or Ac of Use	Unit Var. Cost	Total Var. Cost	Fixed Unit Cost	Total Fixed Cost	Item	Qty.	Unit	Cost/Unit	Cost/Ac		
February																
Nitrogen	0.25	\$15.00	\$3.75	Spreader	1	\$2.21	\$2.21	\$2.66	\$2.66	Urea	225	lbs	\$0.40	\$90.00	\$95.96	\$98.62
March																
Pruning	30	\$12.50	\$375.00	Pruner	20	\$0.20	\$4.00	\$0.10	\$2.00					\$-	\$379.00	\$381.00
Brush Removal	0.6	\$15.00	\$9.00											\$-	\$9.00	\$9.00
Herbicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Princep 4L	1.5	qts	\$8.00	\$12.00	\$20.97	\$23.97
April																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Sulfurix	3	gal	\$22.00	\$66.00	\$74.97	\$77.97
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$27.17	\$30.17
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
May																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	15.4	oz	\$2.32	\$35.73	\$44.70	\$47.70
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Fungicide			\$-				\$-		\$-	Captan 80WDG	2.5	lb	\$7.28	\$18.20	\$18.20	\$18.20
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
June																
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Hoing	8	\$12.50	\$100.00											\$-	\$100.00	\$100.00
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$6.00	Sevin XLR	4	qts	\$13.00	\$52.00	\$68.47	\$74.47
July																
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Abound	6.2	oz	\$2.32	\$14.38	\$23.35	\$26.35
Fungicide	0.5	\$15.00	\$7.50	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Rally 40WSP	2.5	oz	\$4.11	\$10.28	\$19.25	\$22.25
Irrigation	0.05	\$15.00	\$0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
August																
Mowing	0.6	\$15.00	\$9.00	Mower	1	\$5.13	\$5.13	\$5.50	\$5.50					\$-	\$14.13	\$19.63
Insect Control	1	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Delegate	5	oz	\$9.23	\$46.15	\$62.62	\$65.62
Insect Control	1.0	\$15.00	\$15.00	Sprayer	1	\$1.47	\$1.47	\$3.00	\$3.00	Mustang Maxx	12	oz	\$1.15	\$13.80	\$30.27	\$33.27
Irrigation	0.05	15	0.75	Irrigation	1	\$82.67	\$82.67	\$63.33	\$63.33					\$-	\$83.42	\$146.75
November																
Fertilize grass	0.3	15	4.5	Spreader	1	2.21	2.21	2.66	2.66	Urea	20	lbs	\$0.40	\$8.00	\$14.71	\$17.37
Interest on variable costs (1/2 year)															\$38.75	\$8,753,717.31
Pre-Harvest Totals	59.2		\$773.00						\$264.32						\$1,588.90	\$1853,222.41
HARVESTING																
Total quantity harvested				7000	qts											
Picking	265.0	\$12.50	\$3,312.50												\$3,312.50	\$3,312.50
Clamshells											7000	clamshells	\$0.15	\$1,050.00	\$1,050.00	\$1,050.00
Refrigeration					1	\$1.22	\$36.60	\$1,100.00	\$1,100.00						\$36.60	\$1,136.60
Marketing											7000	quarts	\$0.45	\$3,150.00	\$3,186.60	\$3,186.60
Harvest Totals	265.0		\$3,312.50				\$36.60		\$1,100.00						\$7,585.70	\$8,685.70
Totals	324.2		\$4,085.50						\$1,364.32						\$9,174.60	\$10,538.92

Table 24. Establishment cost for 1 acre of thornless semi-erect blackberries, Kentucky, 2017.

Soil Buildup Year	Cost/Ac	First Fruiting Year	Cost/Ac	Third Fruiting Year	Cost/Ac
Variable costs	\$400.57	Variable costs	\$8,607.02	Variable costs	\$8,574.60
Fixed costs	\$41.26	Fixed costs	\$1,365.16	Fixed costs	\$1,364.32
Cost of land and taxes	\$160.00	Cost of land and taxes	\$160.00	Cost of land and taxes	\$160.00
Total soil buildup year	\$601.83	Interest on accrued establishment costs (5%)	\$315.88	Interest on accrued establishment costs (5%)	\$-
Accrued establishment costs	\$601.83	Total costs, first fruiting year	\$10,448.06	Total costs, third fruiting year	\$10,098.92
Planting Year	Cost/Ac	Total revenue, first fruiting year	\$9,000.00	Total revenue, third fruiting year	\$27,000.00
Variable costs	\$5,275.02	Total return, first fruiting year	\$(1,448.06)	Total return, third fruiting year	\$16,901.08
Fixed costs	\$250.66	Accrued establishment costs through first fruiting	\$16,765.66	Four-year return to land, labor, and management	\$18,159.53
Cost of land and taxes	\$160.00	Total establishment cost (less year 3 revenue)	\$7,765.66	Fourth Fruiting Year	Cost/Ac
Interest on soil buildup year costs (5%)	\$30.09	Second Fruiting Year (breakeven)	Cost/Ac	Variable costs	\$9,174.60
Total planting year	\$5,715.77	Variable costs	\$7,057.79	Fixed costs	\$1,364.32
Accrued establishment costs through year 2	\$6,317.60	Fixed costs	\$1,369.82	Cost of land and taxes	\$160.00
		Cost of land and taxes	\$160.00	Interest on accrued establishment costs (5%)	\$-
		Interest on accrued establishment costs (5%)	\$388.28	Total costs, fourth fruiting year	\$10,698.92
		Total costs, second fruiting year	\$8,975.89	Total revenue, fourth fruiting year	\$31,500.00
		Total revenue, second fruiting year	\$18,000.00	Total return, fourth fruiting year	\$20,801.08
		Total return, second fruiting year	\$9,024.11	Five-year return to management	\$38,960.61
		Three-year return to land, labor, and management	\$1,258.45		

Acknowledgments

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