Cost comparison of honey production in frame and Warré ecological hives for 5 hives over 10 years*

Translated by David Heaf (with permission) from the 430-page manual on Warré beekeeping
entitled 'L' apiculture écologique de A à Z', by Jean-Marie Frèrès and Jean-Claude Guillaume
Updated to euros from the 804-page second edition of the same book, January 2012 (but see endnote)

1 Frame hive

			Cost euros € (2011)	Time min.	Weight kg
1.1		**Materials**			
	a	**Starting materials for 5 hives**			
		Clothing & veil	20.7		
		Gloves	8.67		
		Smoker	24.8		
		Frame lifter	3.72		
		Brush	4.1		
		Hive (all types, 5 at 109 €)	545		
		Feeder	5.83		
		Ripener 60 kg	81		
		Knife	6.81		
		Nuc box	57		
		Foundation (15 sheets at 0.75 €)	11.25		
		Castors	2.97		
		Spur embedder	4.41		
		Bradawl	1.73		
		Tinned wire (250 g)	2.72		
		Frame lifting pliers	5.8		
		Queen excluder	6.8		
		Extractor (minimum price)	280		
		Sulfur sticks (10 pieces at 0.27 €)	2.7		
		Propolis production grille	5.57		
		Skep	29.75		
		12-frame transport boxes (6)	148.77		
		Bee brush	1.44		
		Honey pots (40 x 5 x 0.25 €)	50		
		TOTAL	**1311.54**		
	b	**Consumables (calculated for 10 years)**			
		Gloves (1 pair minimum)	8.68		

2 Warré ecological hive

			Cost euros € (2011)	Time min.	Weight kg
2.1		**Materials**			
	a	**Starting materials for 5 hives**			
		Clothing and veil	20.7		
		Gloves	8.67		
		Smoker	24.8		
		Frame lifter	3.72		
		Brush	4.1		
		Hive (all types, 5 at 100 €)	500		
		Feeder	5.83		
		Ripener 60 kg	81		
		Knife	6.81		
		Sulphur sticks (10 pieces at 0.27 €)	2.7		
		Honey jars (24 x 5 x 0.25 €)	28.8		
		TOTAL	**687.13**		
	c	**Consumables (calculated over 10 years)**			
		Gloves (1 pair minimum)	8.67		

Brush		4.1
Foundation (27 sheets at 0.75 €)		20.25
Tinned wire (2 bobbins)		5.45
Smoker		24.8
Sulphur (10 x 9 x 0.25 €)		24.3
	TOTAL	**87.58**
	TOTAL OUTLAY	**1399.12**

1.2 **Detail of time allocated for this type of hive**

List of tasks for one hive

a **Spring visit**

Putting on bee suit and gloves	10
Lighting smoker	5
Removing roof	2
Removing crown board	2
Inspecting hive (4 frames)	20
Replacing crown board	2
Replacing roof	2
Levelling hive	5
	48

b **Supering**

Putting on bee suit and gloves	10
Lighting smoker	5
Removing roof	2
Removing crown board	2
Putting on queen excluder	1
Putting super on	2
Replacing crown board	1
Replacing roof	2
	25

c **Visit mid nectar flow**

Putting on bee suit and gloves	10
Lighting smoker	5
Removing roof	2

Smoker		4.1
Brush		24.8
Sulphur (10 x 9 pieces x 0.27 €)		2.7
		40.27
	TOTAL OUTLAY	**727.4**

2.2 **Detail of time allocated for this type of hive**

List of tasks for one hive

a **Honey harvest**

Putting on bee suit and gloves	10
Lighting smoker	5
Removing roof	2
Freeing hive body box	2
Lifting off hive body box with honey	5
Replacing rof	2
Bringing back box to extract honey, time varies according to distance, min. time	5
TOTAL	**21**

b **Extraction**

Removing comb and honey from box	5
Draining honey (monitoring)	30
	35

c **Cleaning**

Cleaning equipment (overall time)	30
Cleaning honey jars (24 jars of 0.5 kg x 2 min.)	48
TOTAL	**78**

d **Bottling**

This is based on an annual production of 12 kg which corresponds to the average for this type of hive, given that a weight of approximately 12 kg honey is left for the bees for wintering.

Bottling (24 jars at 2 min.)	48

e **Rendering wax**

	Removing crown board		2
	Inspecting frames (5 frames 5 min)		25
	Replacing crown board		2
	Replacing roof		2
			48
d	**Swarm control**		
	Putting on bee suit and gloves		10
	Lighting smoker		5
	Removing roof		2
	Removing crown board		2
	Removing super		5
	Removing 3 frames		15
	Inserting 3 empty frames		2
	Replacing excluder & super		3
	Replacing crown board		1
	Replacing roof		2
			47
e	**Winter preparation of hive**		
	Feeding to be multiplied 4 times		
	Dissolving 4 kg sugar in water (cost 4 x 1 € = 4 €)		10
	Removing roof		2
	Adding feed		1
	Replacing roof		2
			15
	Total time 15 x 4		**60**
	Total cost of wintering 4 € x 4	16 €	
f	**In case of natural swarming**		
	Checking 'x' days, minimum time		15
	Putting on bee suit and gloves		10
	Taking swarm in skep		10
	Checking queen is in swarm		5
	Preparation of nuc + 6 frames of foundation		30
	Transferring swarm to nuc		30
	Feeding: dissolving 1 kg sugar in water		10
	Feeding swarm		1
	Rendering wax with a view to sale		60
f	**Swarm control**		
	Artificial swarming whole colony in spring with feeding (0.5 kg honey)		30
g	**Natural swarming**		
	Putting on bee suit and gloves		10
	Recovering swarm in an inverted hive-body box with starter strips		30
	Setting up hive with supplementary boxes		5
	Feeding (1 kg sugar + water, 2 lemons / kg sugar)		10
	Installing roof		2
		TOTAL	**57**
	This hive is ready for production.		

	Feeding in 10-frame hive after 1 year		30
			141
	Cost of feeding swarm: 1 € x 1 operation (not included in analysis)	1 €	
g	**Preparing nuc for winter**		
	Feeding to be multiplied 4 times		
	Dissolving 2 kg sugar in water (cost 4 x 40 = 160 F)		10
	Removing roof		2
	Adding feed		1
	Replacing roof		2
			15
	Total time 15 x 4		**60**
	Cost of wintering nuc (2kg x 1 €) x 4 operations	8 €	
h	**Harvesting honey**		
	Putting on bee suit and gloves		10
	Lighting smoker		5
	Removing roof		2
	Removing crown board		2
	Removing frames to transport box		10
	Replacing crown board		2
	Replacing roof		2
			33
	Extracting honey		
	Preparing equipment (frame holder, extractor, ripener, uncapping knife, box)		30
	Uncapping on frame holder (10 x 4)		40
	Extraction by 4 frames at a time (8 min), 3 extractions (3 x 8)		24
	Draining and filtering honey into ripener		30
			124
	Total extraction time		**157**
i	**Cleaning equipment**		
	Before extraction		
	Overall cleaning time		**30**

After extraction

Giving the supers frames back to the bees to lick clean

Putting on bee suit and gloves	10
Removing roof	2
Replacing super	2
Replacing frames	2
Replacing roof	2
	18

Recovering supers frames

Putting on bee suit and gloves	10
Removing roof	2
Removing super and frames	2
Replacing roof	2
	16

Setting up the sulphuring of the supers frames

Overall time	**15**
Cost of this operation: supplying two candles at 0.27	0.54 €

Cleaning equipment

Overall time	**60**

Total cleaning time	**139**

j **Bottling**

This is based on an annual production of 20 kg which corresponds to the average for this type of hive

Cleaning jars (2 min. x 40)	80
Mixing honey	30
Bottling (2 min. x 40)	80
	190

k **Total time allocated**

Spring visit	48
Supering	25
Visit mid nectar flow	48
Swarm control	47
Winter preparation of hive	60

h **Total time allocated**

Honey harvest	31
Extraction	35
Cleaning	78
Bottling	48
Rendering wax	60

Extracting honey	157
Cleaning equipment	139
Bottling honey	190
TOTAL TIME	**714**

Which is 11 h 54 min.
Time rounded to 12 h per hive.
This is 12 x 5 = 60 for 5 hives.

Supplement for natural swarming (not included in the calculation)

Recovering swarm	141
Preparing nuc for winter	60
TOTAL	**201**

Time rounded to 3 h 30 min per hive
For 5 hives: 3 h 30 min. x 5 = 17 h 30 min.

1.3 **Calculation of production cost of 1 kg honey**
Based on 5 hives over a period of 10 years
assuming one stops at 5 hives

a **Capital outlay**

Starting materials	1311.54
Consumables	87.58
TOTAL	**1399.12**
ROUNDED TOTAL	**1400**

b **Supplementary feeding with sugar and sulphuring stored frames**

4 kg at 1 € per kg = 4 € a feed	
4 € x 4 feeds = 16 € F per hive per year	
For 10 years: €16 x 5 hives x 10 years	800
Sulphuring stored frames 0.27 € x 2 x 10 years	5.4
TOTAL	**805.4**

In case of natural swarming, feeding bees in nucs with sugar
1 kg at 1 € x 5 hives = 5 € per year
For 10 years: 1 € x 5 hives x 10 years = 50 € of supplementary feeds.

Swarm control	30
TOTAL TIME	**282**

Which is 4 h 42 min.
Time rounded to 5 hours per hive
For 5 hives: 5 h x 5 = 25 h

Supplement for natural swarming (not included in the calculation)
Time of 57 min. rounded to 60 min or 1 h per hive.
For 5 hives: 1 h x 5 = 5 hours

2.3 **Calculation of the production cost of 1 kg honey**

Based on 5 hives over a period of 10 years assuming one stops at 5 hives

Capital outlay

a	Starting materials	687.13
	Consumables	40.27
	TOTAL	**727.4**
	TOTAL ROUNDED	**730**

Supplementary feeding

b	Feeding the bees in spring with honey	
	0.5 kg at 6.2 € per kilo per hive per year	
	3.1 € x 5 hives x 10 years	155
	TOTAL	**155**

In case of natural swarming, feeding bees in nucs with sugar
1 kg at 40 F x 5 hives = 200 F per year

For 10 years: 40 F x 5 hives x 10 years = 2000 F of supplementary feeds.

This last sum is not taken into account in the production cost which follows.

c **Total cost**

Capital outlay (rounded)	1400	
Supplementary feeding and sulphuring frames in sto	805.4	
TOTAL	**2205.4**	
TOTAL ROUNDED	**2200**	

d **Honey production**

Based on an average yield of 20 kg per hive.
For 1 year: 20 kg x 5 hives = 100 kg
For 10 years: 20 kg x 5 hives x 10 years = 1000 kg 1000

e **Sales receipts**

Based on an average price of 250 F per kilo of honey and 20 kg per hive per year.

For 1 year: 20 kg x 6.2 € x 5 hives	620
For 10 years: 20 kg x 6.2 € x 5 hives x 10 years	6200

f **Net profit**

For 10 years with 5 hives

Sales receipts	6200
Total cost	2200
NET PROFIT	**4000**

g Production cost of 1 kg honey (euros) **2.2**

Summary table of comparison

	Frame hiv	**Warré hive**	
Total annual production	20	12	kg
Capital outlay	1400	730	euros
Supplementary feed (and sulphur for frame hive)	805	155	euros
Total outlay	2200	885	euros
Honey production	1000	600	kg
Sales receipts	6200	3720	euros
Net profit	4000	2800	euros
Production cost per kg. honey	2.2	1.48	euros
Time allocation for 1 hive for one year	12	5	hours

This last sum is not taken into account in the production cost which follows.

c **Total cost**

Capital outlay	730	
Supplementary feeding	155	
TOTAL	**885**	

d **Honey production**

Based on an average yield of 12 kg per hive.
For 1 year: 20 kg x 5 hives = 60 kg
For 10 years: 20 kg x 5 hives x 10 years = 600 kg 600

e **Sales receipts**

Based on the current average price of 250 F per kilo of honey and 12 kg per hive per year.

For 1 year: 12 kg x 6.2 € x 5 hives	372
For 10 years: 12 kg x 6.2 € x 5 hives x 10 years	3720

f **Net profit**

For 10 years with 5 hives

Sales receipts	3720
Total cost	885
NET PROFIT	**2835**

g Production cost of 1 kg honey **1.48**

Note by J-C Guillaume, p. 43, 2nd edition, 'L' apiculture écologique de A à Z'

Even if this detailed study is a little dated since it was made in 1992 for the first
and even if the price of materials and honey have increased somewhat, the diffe
the same. Regarding the benefits, it is important to note that nowadays several
to maintain colonies in modern hives, which even further complicates their mana
look closer, we would certainly notice that these new tasks lengthen, in all likelih
way, the time needed for running these hives. This means that a similar cost-be
would be done these days, would show an increase in benefits which would in a
much higher than the one we have estimated here, but with additional expenses
without any doubt be rising.

Note by J-C Guillaume, p. 43, 2nd edition, 'L' apiculture écologique de A à Z'