

FORM 7: DIET DESIGN (2)

NAME: 40 BU

It is best to limit this exercise initially to 8 to 12 crops.

DATE: 2009

CROPS	I	J	K	L	M	N	O	P	Q	R
	CALORIES per lb or kg [HTG Col. MM]	CALORIES per BED per YR [Ex I]	ACTUAL CALORIES per YR [B x I]	CALCIUM per lb or kg (mg) [g]	CALCIUM per BED per YR (mg) [Ex L]	ACTUAL CALCIUM per YR (mg) [B x L]	PROTEIN per lb or kg (grams) [h]	PROTEIN per BED per YR (g) [Ex O]	ACTUAL PROTEIN per YR (g) [B x O]	BCM
Potatoes	358		522,680	26		37,960	7.7		11,242	29.2
Garlic	676		15,412	116		2,644	24.8		565	1.3
Jer. Art.	345		35,259	44		4,496	7.2		735	3
Leeks	277		66,480	123		29,520	5.2		1,248	4
Parsnips	340		40,460	193		22,967	6.6		785	4
Parsley	163		7,416	921		41,905	16.3		741	2.5
Cayenne	1470		8,379	681		3,881	45		256	2.8
Pinto	1542		53,970	612		21,420	103.9		3,636	14
(Pinto)	1542		32,382	612		12,852	103.9		2,181	—
Fava	1547		47,338	463		14,167	113.9		3,485	—
Barley	1583		25,328	73		1,168	37.2		595	60.8
Wheat	1483		29,660	209		4,180	55.8		1,116	
Corn	1656		295,596	100		17,850	40.4		7,211	
Amar.	11696		27,136	2224		35,584	69.5		1,112	
Raisins	1311		59,781	281		12,813	11.3		515	
Alberis	2876		262,435	948		86,505	57.2		5,219	
Rye	1520		30,400	172		3,440	54.9		1,098	

TOTALS Annual 1,560,112 Annual 353,352 Annual 41,740

Daily 4,294 Daily 968 Daily 114

2,137 per person 484 per person 57 per person

MINI-FARM DESIGN GOALS Annual 876,000 Annual 182,500 Annual 18,615
Daily 2,400 Daily 500 Daily 51

BCM = Bed-Crop-Months

(g) HTGMV Column NN

(h) HTGMV Column LL

FORM 9: COMPOST DESIGN (1)

NAME: 40B4

DATE: 2009

COMPOST MATERIALS

	A@	B	C	D@	E	F	G	H	I	J
MATURE (DRY) MATERIALS Include all carbon-producing beds from Diet Design. Add more, if necessary.	MO. IN BED ##	CROPS per YEAR	ACTUAL AREA IN BEDS #	BED-CROPS [B x C]	INTERM. YIELD / BED / CROP * MAT. * lb or kg	ANNUAL YIELD per BED * MAT. * lb or kg [B x E]	ACTUAL YIELD * MAT. * lb or kg [C x F]	% DRY MATTER * MAT. *	ANNUAL "100% DRY MATTER" YIELD lb or kg [F x H x 0.01]	ACTUAL "100% DRY MATTER" YIELD lb or kg [G x H x 0.01]
Flour Corn	4.25	1	10.5	10.5	48	48	504	90.6	43.4	
Amaranth	3	1	2	2	24	24	48	90.3	21.7	
Raisin Grapes	12	1	2.56	2.56	15	15	38.4	90	13.5	
Filberts	12	1	9	9	19	19	171	90	17.1	
Rye, Cereal	9	1	2	2	30	30	60	92.8	27.8	
Wheat, h.r.w.	9	1	2	2	30	30	60	92.5	27.75	
Barley	4	1	1.6	1.6	30	30	48	90	27	
Fava Beans	9	1	3.4	3.4	36	36	122.4	87.9	31.6	
Inc. Am.	3	1	[.15]	[.15]	24	24	3.6	90.3	21.7	

DRY SUBTOTAL

33.21 33.21 [] = beds, B-C, BCM already accounted for in Income design

IMMATURE (GREEN) MATERIALS	MO. IN BED ##	CROPS per YEAR**	ACTUAL AREA IN BEDS #	BED-CROPS [B x C]	INTERM. YIELD / BED / CROP * GRN * lb or kg	ANNUAL YIELD per BED * GRN * lb or kg [B x E]	ACTUAL YIELD * GRN * lb or kg [C x F]	% DRY MATTER * GRN *	ANNUAL "100% DRY MATTER" YIELD lb or kg [F x H x 0.01]	ACTUAL "100% DRY MATTER" YIELD lb or kg [G x H x 0.01]
Fava Beans	6	1	(7.47)	(7.47)	180	180	1,344	17.4	31.3	
BHCC	7	1	(20)	(20)	35	35	700	18	6.3	
Comfrey	12	1	.52	.52	184	184	95	11	20.2	
Alfalfa	12	1	.63	.63	106	106	66	26.3	27.8	

GREEN SUBTOTAL

1.15 1.15 () = harvested before main season crop; these beds are accounted for by main season crops (will not receive extra compost)

TOTALS

34.26 34.26

GOAL FOR COMPOST DESIGN: • 67% of area producing significant amounts of dry (carbonaceous) material,

• 33% of area producing significant amounts of green (nitrogenous) material. RATIO: 2 dry : 1 green

BED = 100 sq ft = 9.3 sq m (10 sq m)

HTGMV 6: (Col. N + Col. O) / 4.3

GRN = GREEN

** For perennials: Months in Bed = 12; Crops per Year = 1.

In tropics, Months in Bed = 6; Crops / Year = 2 (to allow for two compost applications per year).

@ You should wait to fill in Columns A, D, Q and R until the other columns are more or less settled.

FORM 9: COMPOST DESIGN (2)

NAME: 40 BU

DATE: 2009

CARBON (BUILT)

NITROGEN (BUILT)

DRY (MATURE) MATERIALS	K	L	M	N	O	P	Q@	R@
	% C *DRY*	ANNUAL C per BED *DRY* lb or kg [I x K x 0.01]	ACTUAL C *DRY* lb or kg [L x C]	% N *DRY*	ANNUAL N per BED *DRY* lb or kg [F x N x 0.01]	ACTUAL N *DRY* lb or kg [O x C]	C/N RATIO [M/P]	B-C-M [A x B x C]
Corn	52.3	22.6	237.3	0.9	0.43	4.51		44.6
Amaranth	52.3	11.2	22.4	0.8	0.19	0.38		6
Grapes	52	7.0	17.9	0.6	0.09	0.23		30.7
Alfalfa	52	8.8	79.2	0.6	0.11	0.99		108
Rye	53.6	14.9	29.8	0.6	0.18	0.36		18
Wheat	50.9	14.1	28.2	0.6	0.18	0.36		18
Barley	52.2	14.09	22.5	0.6	0.18	0.28		6.4
Fava Beans	50.9	16.08	54.6	1.4	0.50	1.7		30.6
Inc. Am.	52.3	11.2	1.6	0.8	0.19	0.03		[.15]
DRY SUBTOTALS			493.5			8.84		

GREEN MATERIALS	% C *GRN*	ANNUAL C per BED *GREEN* lb or kg [I x K x 0.01]	ACTUAL C *GREEN* lb or kg [L x C]	% N *GRN*	ANNUAL N per BED *GREEN* lb or kg [F x N x 0.01]	ACTUAL N *GREEN* lb or kg [O x C]	C/N RATIO [M/P]	B-C-M [A x B x C]
	Fava Beans	54.6	17.0	126.9	0.6	1.08	8.06	
BI4CC	54.6	3.44	68.8	0.6	0.21	4.2		(140)
Comfrey	54.3	10.96	5.6	0.5	0.92	0.47		6.2
Alfalfa	54.3	15.09	9.5	0.7	0.74	0.46		7.5

GREEN SUBTOTALS

210.8

13.19

TOTALS

704.3

22.03

276

'BUILT' C/N RATIO (Col. M Total / Col. P Total) = **31.9 / 1**

MINIMUM GOAL: C/N RATIO: ~30 / 1

AVERAGE PRODUCED PER COMPOST CROP BED-CROP (see Table B for Goals)

Average 'BUILT' Carbon per Bed-Crop: Col. M Total / Col. D Total = 11.38 lb or kg C

Average 'BUILT' Nitrogen per Bed-Crop: Col. P Total / Col. D Total = 0.35 lb or kg N

include () and []
because they
contribute to
production

FORM 9: COMPOST DESIGN (3)

NAME: 4034

DATE: 2009

VOLUME OF CURED COMPOST

	S	T	U		V
DRY MATERIALS	ACTUAL 'BUILT' VOLUME DRY MATERIAL cu ft or cu m [G / 3.6 lb or 57.7 kg#]	CURING FACTOR ## (approx.)	ACTUAL CURED VOLUME * WITHOUT * * SOIL * cu ft or cu m		ACTUAL CURED VOLUME * WITH * * SOIL * cu ft or cu m
Corn	140				
Amaranth	13.3				
Grapes	10.6				
Albets	47.5				
Rye	16.6				
wheat	16.6				
Barley	13.3				
Fava Beans	34				
Inc. Am.	1				
TOTAL DRY MATERIAL	292.9	1 ~ 6.57 =	44.58		
GREEN MATERIALS	ACTUAL 'BUILT' VOLUME GREEN MATERIAL cu ft or cu m [G / 8.5 lb or 136.2 kg#]				
Fava Beans	158.1		+		
Bitcc	82.3				
Comfrey	11.1				
Alfalfa	7.7				
TOTAL GREEN MATERIAL	259.2	1 ~ 8.50 =	30.49	###	
TOTAL ORGANIC MATTER			75.07	x 2 =	150.14

These conversion rates are averages based on data from five diverse research piles (33,34,37,49,53).

Based on curing percentages approximated by Ecology Action. Can be lower for cold piles.

Assumes ~10% soil at the built stage and ~50% soil at the cured stage.

RATIO OF 'BUILT' VOLUME TO CURED VOLUME:

Approx. Total 'Built' Volume with Soil [(Col. S Dry + Col. S Green) 552.1 x 1.11 (assuming soil in built pile = ~10% by volume) = 612.8] / Total Cured Volume with Soil (V) = 4.08

FORM 9: COMPOST DESIGN (4)

Box A: TOTAL MINI-FARM BED-CROPS
that will receive compost

Diet Design Bed-Crops	<u>13.54</u>
[Col. H Total from Diet Design (1)]	
Income Design Bed-Crops	<u>2</u>
[Col. D Total from Income Design]	
Compost Design Bed-Crops	<u>34.26</u>
[Col. D Total from Compost Design (1)]	
TOTAL (Z)	49.82

Box C: TOTAL MINI-FARM BEDS

	%	GOAL
Carbon/Calorie(Dry)	<u>33.06</u>	<u>67.19</u>
		60%
Green Compost	<u>1.15</u>	<u>2.33</u>
Special Root	<u>8.99</u>	<u>18.31</u>
		30%
Vegetable	<u>4.57</u>	<u>9.3</u>
		min 2.5%
Income	<u>1.5</u>	<u>3.0</u>
		max 7.5%
TOTAL	49.27	100%

Box B: CURED COMPOST VOLUME (including soil)
AVAILABLE PER BED-CROP
FOR ALL CROPS GROWN

Col. V [from Compost Design (3)] 150.14

/ Total Mini-Farm Bed-Crops (Z) 49.82

= 3.01 cu ft or cu m

Minimum Goal: ~2.0 cu ft [~0.06 cu m]
More is desirable. (See Table C.)

Box D: BED-CROP-MONTHS

	%	GOAL
Carbon/Calorie	<u>262.3</u>	<u>49.41</u>
		60%
Green Compost	<u>198.52</u>	<u>37.39</u>
Special Root	<u>41.5</u>	<u>7.82</u>
		30%
Vegetable	<u>19.3</u>	<u>3.63</u>
		min 2.5%
Income	<u>9.29</u>	<u>1.75</u>
		max 7.5%
TOTAL	530.91	100%

Box E: INDICES FOR PRODUCTIVITY REFERENCE

Compost Volume (Compost Crop Beds)

Average Cured Compost Volume (with soil)
Produced per Compost Crop Bed =
Col. V / Col. C Total = 4.38 cu ft or cu m

Average Cured Compost Volume (with soil) per Compost Crop Bed-Crop (V / D Total) = 2.42 cu ft/cu m
GOAL: 3.4 cu ft [0.1 cu m] (See Table B.)

Cured Carbon and Nitrogen (Mini-Farm Beds)

Total 'Built' Carbon (Col. M Total) 704.3 / 2 = ~ 352.15 Total Cured Carbon (Y) (lb or kg)

/ 49.82 (Z) Total Mini-Farm Bed-Crops = ~ 7.06 lb/kg Average Cured Carbon per Mini-Farm Bed-Crop
GOAL: ~5.0 lb [~2.4 kg] (See Table C.)

Total Cured Carbon (Y) 352.15 / 10 * = ~ 35.2 Total Cured Nitrogen (lb or kg) * See pp. 26-27.

/ 49.82 (Z) Total Mini-Farm Bed-Crops = ~ 0.7 lb/kg Average Cured Nitrogen per Mini-Farm Bed-Crop
GOAL: ~0.5 lb [~0.2 kg] (See Table C.)

(591.24 BCM available)

} includes [J] and [K] b/c they contribute to production