Table S1 Total fatty acid (FA) composition and content in wild type (Wt) and genetic modified (GM) Crambe seeds at different days after flowering (DAF). The results are from duplicate analyses ± SD.

Seeds		Total FA composition (Mol%)										
		16:0	18:0	18:1	18:2	18:3	20:0	20:1	22:0	22:1	24:0	24:1
Wt	20 DAF	4.2 ± 0.0	1.0 ± 0.2	18.1 ± 0.3	13.7 ± 0.1	9.4 ± 0.0	0.9 ± 0.0	4.4± 0.2	1.7 ± 0.2	40.9 ± 0.1	0.5 ± 0.0	0.9 ± 0.0
	27 DAF	2.5 ± 0.0	0.7 ± 0.1	17.4 ± 0.2	11.0 ± 0.0	6.8 ± 0.0	0.7 ± 0.0	2.2 ± 0.0	2.0 ± 0.2	51.1 ± 0.2	0.6 ± 0.0	1.2 ± 0.0
	34 DAF	2.3 ± 0.0	0.6 ± 0.0	16.9 ± 0.0	11.5 ± 0.0	5.7 ± 0.0	0.7 ± 0.0	1.5 ± 0.0	1.6 ± 0.3	53.4 ± 0.6	0.7 ± 0.0	1.3 ± 0.0
	41 DAF	2.2 ± 0.0	0.6 ± 0.1	16.8 ± 0.1	11.0 ± 0.0	6.1 ± 0.0	0.7 ± 0.0	1.2 ± 0.0	1.4 ± 0.3	54.3 ± 0.3	0.7 ± 0.0	1.3 ± 0.0
	50 DAF	2.2 ± 0.0	0.6 ± 0.0	17.1 ± 0.0	10.9 ± 0.0	5.9 ± 0.0	0.7 ± 0.0	1.2 ± 0.0	2.1 ± 0.0	54.0 ± 0.0	0.7 ± 0.0	1.3 ± 0.0
GM	20 DAF	4.9 ± 0.0	1.5 ± 0.0	21.7 ± 0.0	7.2 ± 0.0	12.4 ± 0.0	0.8 ± 0.1	6.1 ± 0.1	1.4 ± 0.1	36.9 ± 0.1	0.8 ± 0.0	0.9 ± 0.0
	27 DAF	2.5 ± 0.0	0.7 ± 0.1	12.6 ± 0.1	4.1 ± 0.0	6.9 ± 0.0	0.6 ± 0.0	4.7 ± 0.0	2.0 ± 0.1	58.9 ± 0.0	0.7 ± 0.0	1.6 ± 0.0
	34 DAF	1.9 ± 0.0	0.6 ± 0.0	8.8 ± 0.0	2.7 ± 0.0	5.3 ± 0.0	0.5 ± 0.0	2.9 ± 0.1	1.4 ± 0.2	68.2 ± 0.2	0.8 ± 0.0	2.1 ± 0.0
	41 DAF	1.9 ± 0.0	0.5 ± 0.1	8.6 ± 0.1	2.4 ± 0.0	5.2 ± 0.0	0.5 ± 0.0	3.1 ± 0.0	1.2 ± 0.1	69.0 ± 0.1	0.8 ± 0.0	2.2 ± 0.1
	50 DAF	1.8 ± 0.0	0.5 ± 0.0	8.4 ± 0.0	2.2 ± 0.0	5.1 ± 0.0	0.5 ± 0.0	2.7 ± 0.0	2.1 ± 0.0	69.6 ± 0.0	0.8 ± 0.0	2.1 ± 0.0
		FA content (nmol/seed)										
		16:0	18:0	18:1	18:2	18:3	20:0	20:1	22:0	22:1	24:0	24:1
Wt	20 DAF	76 ± 0	18 ± 4	331 ± 7	250 ± 2	172 ± 1	17 ± 0	81 ± 4	31 ± 0	746 ± 5	8 ± 0	16 ± 0
	27 DAF	81 ± 1	24 ± 2	577 ± 19	366 ± 9	226 ± 5	24 ± 0	73 ± 0	66 ± 5	1696 ± 45	20 ± 0	38 ± 0
	34 DAF	123 ± 4	35 ± 1	926 ± 26	627 ± 16	314 ± 7	38 ± 2	81 ± 1	89 ± 13	2925 ± 108	37 ± 1	72 ± 2
	41 DAF	121 ± 1	30 ± 4	912 ± 15	598 ± 8	334 ± 5	38 ± 0	67 ± 3	78 ± 16	2953 ± 54	38 ± 0	72 ± 1
	50 DAF	112 ± 0	32 ± 0	874 ± 4	557 ± 3	304 ± 3	36 ± 1	62 ± 1	108 ± 1	2768 ± 17	34 ± 1	65 ± 1
GM	20 DAF	35 ± 1	11 ± 0	153 ± 2	51 ± 1	87 ± 1	6 ± 1	43 ± 1	10 ± 1	260 ± 4	5 ± 0	6 ± 1
	27 DAF	59 ± 1	17 ± 2	301 ± 7	98 ± 1	164 ± 3	14 ± 0	112 ± 2	47 ± 2	1411 ± 22	18 ± 0	39 ± 1
	34 DAF	61 ± 5	18 ± 1	285 ± 23	88 ± 7	173 ± 14	18 ± 1	93 ± 5	46 ± 1	2202 ± 195	25 ± 2	69 ± 6
	41 DAF	71 ± 2	19 ± 3	322 ± 5	89 ± 3	195 ± 4	20 ± 0	116 ± 2	46 ± 1	2595 ± 62	30 ± 1	82 ± 0
	50 DAF	72 ± 3	21 ± 1	333 ± 16	88 ± 4	202 ± 9	21 ± 1	107 ± 5	84 ± 4	2755 ± 118	31 ± 4	84 ± 4

Table S2 Fatty acid (FA) composition of diacylglycerols (DAG), triacylgclycerols (TAG) and phosphatidylcholine (PC) in wildtype (Wt) and genetic modified (GM) Crambe seeds at different days after flowering (DAF). The results are from duplicate analyses ± SD. (n.d, not detectable)

	Seeds	FA composition in DAG (Mol%)										
		16:0	18:0	18:1	18:2	18:3	20:0	20:1	22:0	22:1	24:0	24:1
Wt	20 DAF	4.6 ± 0.6	1.9 ± 0.2	38.5 ± 2.1	11.3 ± 0.6	3.6 ± 0.1	1.1 ± 0.1	5.9 ± 0.0	1.1 ± 0.3	25.7 ± 2.2	0.9 ± 0.2	0.7 ± 0.1
	27 DAF	3.5 ± 0.1	1.2 ± 0.0	37.9 ± 1.2	11.2 ± 0.8	4.0 ± 0.1	0.6 ± 0.3	4.8 ± 0.2	0.9 ± 0.1	30.2 ± 1.9	0.9 ± 0.1	0.8 ± 0.0
	34 DAF	3.2 ± 0.2	0.9 ± 0.0	23.9 ± 0.4	12.9 ± 0.4	3.8 ± 0.2	0.7 ± 0.1	2.8 ± 0.0	1.4 ± 0.0	43.9 ± 0.2	0.7 ± 0.1	1.3 ± 0.2
	41 DAF	2.5 ± 0.1	0.8 ± 0.0	27.3 ± 0.6	14.6 ± 0.2	5.3 ± 0.1	0.4 ± 0.1	2.2 ± 0.1	1.1 ± 0.0	40.3 ± 0.1	0.5 ± 0.1	1.3 ± 0.1
	50 DAF	2.6 ± 0.0	0.8 ± 0.0	28.2 ± 0.2	14.9 ± 0.5	5.4 ± 0.2	0.5 ± 0.0	2.3 ± 0.0	0.9 ± 0.0	39.3 ± 0.6	0.4 ± 0.0	1.1 ± 0.0
GM	20 DAF	6.4 ± 0.4	2.0 ± 0.1	26.6 ± 0.1	3.8 ± 0.0	2.6 ± 0.0	1.2 ± 0.0	8.6 ± 0.1	1.0 ± 0.2	42.0 ± 0.2	0.5 ± 0.4	0.5 ± 0.0
	27 DAF	3.9 ± 0.1	0.9 ± 0.2	17.1 ± 0.4	2.9 ± 0.4	2.1 ± 0.2	0.6 ± 0.0	7.6 ± 0.3	1.1 ± 0.1	58.1 ± 0.6	0.6 ± 0.0	0.8 ± 0.0
	34 DAF	3.7 ± 0.1	0.9 ± 0.1	8.5 ± 0.1	3.0 ± 0.1	2.5 ± 0.1	0.6 ± 0.0	5.8 ± 0.0	1.1 ± 0.0	67.2 ± 0.8	0.8 ± 0.2	1.4 ± 0.0
	41 DAF	2.3 ± 0.0	0.8 ± 0.1	10.2 ± 0.2	2.3 ± 0.3	3.2 ± 0.3	0.6 ± 0.0	5.8 ± 0.1	1.2 ± 0.0	66.8 ± 0.4	0.7 ± 0.1	2.0 ± 0.1
	50 DAF	2.0 ± 0.1	0.7 ± 0.1	10.0 ± 0.3	1.6 ± 0.3	2.6 ± 0.2	0.5 ± 0.1	5.6 ± 0.1	1.0 ± 0.0	69.8 ± 0.1	0.5 ± 0.1	1.8 ± 0.1
		FA composition in TAG (Mol%)										
		16:0	18:0	18:1	18:2	18:3	20:0	20:1	22:0	22:1	24:0	24:1
Wt	20 DAF	3.6 ± 0.1	1.2 ± 0.2	18.2 ± 0.0	12.2 ± 0.2	7.0 ± 0.2	1.1 ± 0.0	4.7 ± 0.0	1.7 ± 0.2	44.5 ± 0.7	0.5 ± 0.0	1.0 ± 0.0
	27 DAF	2.6 ± 0.0	0.8 ± 0.0	16.6 ± 0.4	10.0 ± 0.1	6.1 ± 0.0	0.7 ± 0.0	2.3 ± 0.1	1.6 ± 0.1	53.6 ± 0.3	0.5 ± 0.0	1.1 ± 0.0
	34 DAF	2.1 ± 0.0	0.6 ± 0.0	16.7 ± 0.3	10.7 ± 0.1	5.4 ± 0.0	0.7 ± 0.0	1.5 ± 0.1	2.4 ± 0.3	54.3 ± 0.7	0.6 ± 0.0	1.3 ± 0.0
	41 DAF	2.7 ± 0.4	0.6 ± 0.1	14.9 ± 0.7	10.2 ± 0.0	6.3 ± 0.1	0.7 ± 0.0	1.4 ± 0.0	2.0 ± 0.1	55.5 ± 0.2	0.5 ± 0.0	1.2 ± 0.0
	50 DAF	2.7 ± 0.1	0.7 ± 0.0	15.3 ± 0.1	10.1 ± 0.1	6.1 ± 0.1	0.7 ± 0.0	1.3 ± 0.0	1.9 ± 0.1	55.7 ± 0.2	0.5 ± 0.0	1.2 ± 0.0
GM	20 DAF	4.1 ± 0.4	1.1 ± 0.1	22.4 ± 0.9	5.8 ± 0.4	7.9 ± 0.9	1.0 ± 0.0	6.8 ± 0.2	1.5 ± 0.2	40.9 ± 2.8	0.5 ± 0.1	1.1 ± 0.2
	27 DAF	2.2 ± 0.3	0.6 ± 0.1	11.5 ± 0.1	3.5 ± 0.2	5.4 ± 0.1	0.6 ± 0.0	4.8 ± 0.0	1.8 ± 0.1	61.3 ± 0.4	0.8 ± 0.1	1.6 ± 0.1
	34 DAF	1.6 ± 0.1	0.5 ± 0.0	8.1 ± 0.4	2.5 ± 0.2	4.6 ± 0.1	0.6 ± 0.1	3.0 ± 0.1	2.0 ± 0.0	69.7 ± 0.8	0.7 ± 0.1	2.1 ± 0.1
	41 DAF	2.3 ± 0.2	0.5 ± 0.2	8.7 ± 0.2	2.4 ± 0.2	5.9 ± 0.4	0.6 ± 0.0	3.4 ± 0.2	1.9 ± 0.0	66.7 ± 1.5	0.5 ± 0.1	1.9 ± 0.1
	50 DAF	2.0 ± 0.1	0.6 ± 0.0	8.0 ± 0.0	2.3 ± 0.0	5.4 ± 0.1	0.6 ± 0.0	2.9 ± 0.0	1.9 ± 0.1	69.3 ± 0.5	0.7 ± 0.0	2.0 ± 0.0
		FA composition in PC (Mol%)										
		16:0	18:0	18:1	18:2	18:3	20:0	20:1	22:0	22:1	24:0	24:1
Wt	20 DAF	13.9 ± 0.2	3.2 ± 0.2	21.8 ± 0.2	33.5 ± 0.0	17.7 ± 0.2	0.29 ± 0.0	3.0 ± 0.0	0.2 ± 0.0	2.5 ± 0.1	n.d	n.d
	27 DAF	12.9 ± 1.1	1.7 ± 0.2	26.2 ± 0.1	37.3 ± 0.0	13.4 ± 0.2	0.3 ± 0.0	2.2 ± 0.0	0.2 ± 0.0	2.5 ± 0.1	n.d	n.d
	34 DAF	9.8 ± 0.2	1.2 ± 0.1	42.6 ± 0.4	30.6 ± 0.1	8.0 ± 0.7	0.2 ± 0.0	1.9 ± 0.0	0.1 ± 0.0	1.8 ± 0.0	n.d	n.d
	41 DAF	8.3 ± 0.3	1.1 ± 0.1	42.0 ± 0.8	31.4 ± 0.9	6.8 ± 0.4	0.3 ± 0.0	2.2 ± 0.1	0.2 ± 0.1	3.4 ± 0.1	n.d	n.d
	50 DAF	8.4 ± 0.0	1.3 ± 0.0	41.6 ± 0.2	31.1 ± 0.3	6.7 ± 0.1	0.3 ± 0.0	2.3 ± 0.0	0.3 ± 0.0	3.8 ± 0.6	n.d	n.d
GM	20 DAF	13.9 ± 0.1	2.7 ± 0.1	40.1 ± 0.3	14.6 ± 0.2	19.2 ± 0.0	0.2 ± 0.0	2.5 ± 0.0	0.1 ± 0.0	2.5 ± 0.0	n.d	n.d
	27 DAF	10.9 ± 0.2	1.4 ± 0.1	51.1 ± 0.2	9.8 ± 0.3	16.1 ± 0.6	0.3 ± 0.0	2.5 ± 0.1	0.3 ± 0.0	3.6 ± 0.2	n.d	n.d
	34 DAF	8.7 ± 0.1	1.2 ± 0.0	49.4 ± 0.2	8.8 ± 0.1	20.0 ± 0.3	0.3 ± 0.0	3.3 ± 0.1	0.1 ± 0.0	1.8 ± 0.0	n.d	n.d
	41 DAF	7.6 ± 0.0	1.2 ± 0.1	47.4 ± 0.5	8.7 ± 0.1	21.7 ± 0.5	0.3 ± 0.0	3.8 ± 0.1	0.2 ± 0.1	2.4 ± 0.1	n.d	n.d
	50 DAF	7.6 ± 0.0	1.2 ± 0.0	50.1 ± 0.2	8.4 ± 0.0	19.9 ± 0.1	0.2 ± 0.0	4.0 ± 0.0	0.1 ± 0.0	1.9 ± 0.0	n.d	n.d

Supplemental Data

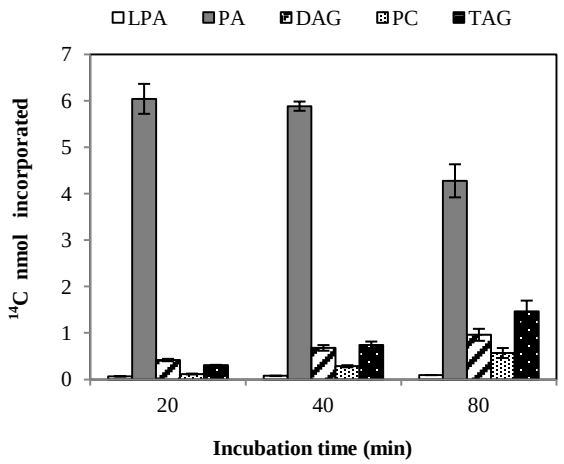

Figure S1 Time course incorporation of radioactivity into various lipids in microsomal preparations from developing turnip incubated with [^{14}C]glycerol 3-phosphate and 18:1-CoA. LPA, lysophosphatidic acid; PA, phosphatidic acid; DAG, diacylglycerol; PC, phosphatidylcholine; TAG, triacylglycerol. Results are shown from triplicates ±SD.