Table 2. Fatty acid composition of rabbit feeds (mg of fatty acid/100 g of feed) used in the experimental design (n=36) [a].

	3% BT	1.5% SO + 1.5% BT	3% SO	1.5% LO + 1.5% BT	3% LO
			Added fat		
C12:0	3.4	5.0	2.3	2.9	3.6
C14:0	56	37	6.7	34	6.2
C15:0	10.4	8.1	3.7	7.3	3.8
C16:0iso	2.7	4.3	N.D.	4.1	N.D.
C16:0	580	500	310	450	280
C17:0	21.8	14.8	3.4	13.6	3.7
C18:0	370	280	117	250	88
C20:0	7.8	10.4	11.6	8.2	8.0
C22:0	5.0	13.2	20.5	6.2	7.5
C24:0	6.6	9.8	12.2	7.4	8.6
SFA	1060	880	490	780	410
C16:1n-9	6.5	5.1	2.7	4.9	3.0
C18:1n-9	660	660	550	580	470
C20:1n-9	8.5	9.0	8.2	8.8	8.8
C24:1n-9	0.99	1.57	1.26	1.22	1.09
C16:1n-7	41	26	4.5	25	4.0
C18:1n-7	36	32	23	27	23
MUFA	750	730	590	650	510
C18:2n-6	500	1200	1800	630	740
C18:3n-6	0.65	0.37	N.D.	N.D.	N.D.
C20:2n-6	3.00	3.53	2.21	2.22	2.56
C20:3n-6	0.96	0.71	0.14	0.62	N.D.
C20:4n-6	3.74	4.0	3.2	3.7	3.6
n-6 PUFA[b]	510	1210	1810	640	750
C18:3n-3	91	103	100	603	1190
C18:4n-3	0.51	0.33	N.D.	0.30	N.D.
C20:3n-3	1.24	0.52	N.D.	1.25	2.45
n-3 PUFA[b]	93	104	100	605	1190
total PUFA	600	1300	1910	1240	1940
9t,12t-18:2	2.22	2.04	0.98	1.55	0.83
9*c*,12*t*-18:2	3.40	3.22	2.70	2.71	1.94
9*t*,12*c*-18:2	1.29	0.92	N.D.	0.94	N.D.
total *trans* 18:2	7.0	6.3	3.7	5.3	2.7
9*c*,11*t*-CLA	3.74	3.39	0.93	2.21	0.44
10*t*,12*c*-CLA	0.66	0.59	0.45	0.49	0.36
ditrans-CLA[c]	2.17	1.77	0.90	1.75	1.02
total CLAs	6.6	5.8	2.2	4.4	1.8
trans18:1	130	77	1.4	70	2.1
total *trans* FA	144	91	7.4	79.7	6.6
Ratio n-6/n-3	5.3	11.6	18.2	1.1	0.6

Abbreviations used: BT = beef tallow; SO = sunflower oil; LO = linseed oil; FA = fatty acids; SFA = saturated fatty acids; MUFA = monounsaturated fatty acids; PUFA = polyunsaturated fatty acids; CLA = conjugated linoleic acid; N.D. = not detected.

[a] Feeds were formulated according to a factorial design (2x3x2): 2 vegetable fat sources were used to replace BT in feeds, one rich in n-6 fatty acids (SO) and another rich in n-3 fatty acids (LO); 3 doses of vegetable fat source [0%, 1.5% or 3% (w/w) of fat supplementation; in all treatments total added fat was completed up to 3% (w/w) with BT]; and α-tocopheryl acetate (αTA) (0 or 100 mg/kg of feed). Feed analysis were conducted in triplicate (n=36).

[b] 22:4n-6, 22:5n-6, 20:5n-3, 22:5n-3 and 22:6n-3 were not detected in feeds.

[c] *Ditrans*-CLA: mixture of isomers.

Table 3. Fatty acid composition, α-tocopherol content, TBA and lipid hydroperoxide values in raw rabbit meat depending on the dose and source of vegetable fat used to replace beef tallow in feeds, and on dietary supplementation with α-tocopheryl acetate.

	Dose of vegetable fat[a]			Source of fat		αTA	
	0%	1.5%	3%	SO	LO	0 mg/kg	100 mg/kg
FA composition[b]							
C10:0	6.1	5.8	6.1	5.9	6.2	6.1	5.9
C12:0	6.4	6.1	6.3	6.2	6.4	6.3	6.2
C14:0	56 z	46 y	36 x	45	47	46	46
C15:0	15.0 y	14.1 xy	13.1 x	14.0	14.1	14.2	13.8
C16:0iso	6.9 y	6.6 y	6.0 x	6.4	6.5	6.5	6.5
C16:0	540 y	510 xy	460 x	490	510	510	500
C17:0	17.6 y	16.8 y	14.7 x	16.2	16.5	16.3	16.4
C18:0	196 y	193 y	173 x	185	190	188	189
C20:0[c]	2.13	2.20	1.98	2.17	2.02	2.17	2.08
C24:0	0.41 x	0.51 y	0.63 z	0.50	0.52	0.54	0.49
SFA	850 y	790 xy	720 x	770	800	790	780
C16:1n-9	11.4 z	10.0 y	8.9 x	10.1	10.2	10.2	10.2
C18:1n-9	600 z	500 y	450 x	510	530	520	510
C20:1n-9	8.0 z	6.1 y	5.0 x	6.5	6.2	6.4	6.3
C24:1n-9	0.53 xy	0.64 y	0.48 x	0.48 x	0.62 y	0.54	0.56
C16:1n-7	64 y	50 x	42 x	50	54	54	50
C18:1n-7	35 z	29 y	24 x	28	30	29	29
MUFA	720 z	600 y	530 x	600	630	620	610
C18:2n-6[c]	410 x	540 y	690 z	640 y	460 x	550	550
C18:3n-6[cd]	1.4 x	1.5 x	1.9 y	1.6	1.6	1.6	1.6
C20:2n-6[c]	6.1 x	6.8 x	8.6 y	8.5 y	5.9 x	7.3	7.1
C20:3n-6[c]	4.3 x	4.7 y	5.1 z	5.0 y	4.5 x	4.6	4.8
C20:4n-6[c]	35 x	39 y	40 y	40 y	35 x	37 x	39 y
C22:4n-6[c]	10.7	11.2	11.3	13.8 y	8.4 x	11.0	11.1
C22:5n-6[c]	3.9 x	4.5 y	4.7 y	4.9 y	3.8 x	4.3	4.5
n-6 PUFA[c]	470 x	610 y	760 z	710 y	520 x	620	610
C18:3n-3[cde]	51 x	151 y	250 z	49 x	250 y	150	150
C18:4n-3[cd]	0.44 x	0.57 y	0.66 z	0.40 x	0.72 y	0.56	0.56
C20:3n-3[c]	1.7 x	3.7 y	5.4 z	1.3 x	5.9 y	3.7	3.5
C20:5n-3[cdf]	1.4 x	3.0 y	4.4 z	1.1 x	4.9 y	2.8 x	3.1 y
C22:5n-3[cdf]	7.7 x	13.6 y	16.7 z	6.8 x	18.5 y	12.1 x	13.2 y
C22:6n-3[cf]	2.1 x	2.7 y	3.2 z	1.9 x	3.4 y	2.5 x	2.7 y
n-3 PUFA[cde]	65 x	174 y	283 c	60 x	285 y	176	172
total PUFA	540 x	780 y	1040 z	770	800	790	780
9t,12t-18:2	2.8 z	2.5 y	2.3 x	2.5	2.6	2.6	2.5
9c,12t-18:2	2.7 z	2.2 y	1.8 x	2.2	2.2	2.2	2.2
9t,12c-18:2[c]	1.36 z	1.07 y	0.83 x	1.03 x	1.14 y	1.09	1.08
total trans 18:2	6.9 z	5.8 y	4.9 x	5.8	6.0	5.9	5.8

9*c*,11*t*-CLA	2.51 z	1.60 y	0.95 x	1.67	1.65	1.63	1.69
10*t*,12*c*-CLA	0.39 z	0.29 y	0.06 x	0.27	0.23	0.25	0.25
ditrans-CLA[g]	0.92 z	0.74 y	0.52 x	0.72	0.74	0.75	0.70
total CLAs	3.8 z	2.6 y	1.5 x	2.7	2.6	2.6	2.6
*trans*18:1	39 z	26 y	7.1 x	24	24	24	25
total *trans* FA	50 z	34 y	14 x	32	33	32	33
Ratio PUFA/SFA	0.6 x	1.0 y	1.5 z	1.0	1.0	1.0	1.0
Ratio n-6/n-3[ce]	7.4 y	6.9 x	9.0 z	12.1 y	3.4 x	7.7	7.8
α-tocopherol content[b]	3.05	2.95	2.77	3.03	2.82	1.39 x	4.46 y
LHP value[b]	0.51 x	0.73 xy	0.81 y	0.65	0.71	0.71 x	0.56 y
TBA value[bcdef]	28 x	29 x	52 y	30 x	43 y	41 y	31 x

Abbreviations used: SO = sunflower oil; LO = linseed oil; αTA = α-tocopheryl acetate; FA = fatty acids; SFA = saturated fatty acids; MUFA = monounsaturated fatty acids; PUFA = polyunsaturated fatty acids; CLA = conjugated linoleic acid; LHP = lipid hydroperoxides; TBA = thiobarbituric acid; N.D. = not detected.

[a] Vegetable fat (sunflower or linseed oil) was added to feeds at 0, 1.5 and 3% (w/w). Total added fat was completed up to 3% (w/w) with animal fat (beef tallow).

[b] Fatty acid composition expressed as mg FA/100 g meat; α-tocopherol content expressed as mg α-tocopherol/kg meat; LHP value expressed as mmol CHPeq/kg meat; TBA value expressed as μg malondialdehyde/kg meat.

[c] Interaction between dose of fat x source of fat significant at $P \leq 0.05$. P values were obtained from multifactor ANOVA, n=48.

[d] Interaction between dose of fat x source of fat x αTA supplementation significant at $P \leq 0.05$. P values obtained from multifactor ANOVA, n=48.

[e] Interaction between dose of fat x αTA supplementation significant at $P \leq 0.05$. P values were obtained from multifactor ANOVA, n=48.

Table 6. Changes in fatty acid composition, α-tocopherol content and TBA value after cooking and refrigeration of cooked rabbit meat.

		Raw meat	Cooked meat	Refrigerated cooked meat
FA composition[a]	C10:0	6.0	5.8	6.0
	C12:0	6.3	6.2	6.3
	C14:0	46	46	48
	C15:0	14.0	14.1	14.3
	C16:0iso	6.5	6.4	6.5
	C16:0	500	510	520
	C17:0	16.4	16.5	16.6
	C18:0	187	191	195
	C20:0	2.10	2.25	2.20
	C24:0	0.51 x	0.75 z	0.63 y
	SFA	790	800	820
	C16:1n-9	10.1	10.4	10.6
	C18:1n-9	520	530	530
	C20:1n-9	6.4	6.5	6.5
	C22:1n-9	N.D. x	0.57 y	0.41 y
	C24:1n-9	0.55 x	0.68 y	0.63 z
	C16:1n-7	52	52	52
	C18:1n-7	29	30	30
	MUFA	620	630	630
	C18:2n-6	550	550	550
	C18:3n-6	1.59	1.55	1.56
	C20:2n-6	7.2	7.1	7.3
	C20:3n-6	4.7	4.6	4.8
	C20:4n-6	38 y	34 x	36 xy
	C22:4n-6	11.1 y	10.3 x	11.0 xy
	C22:5n-6	4.4 y	3.8 x	4.2 x
	n-6 PUFA	620	610	620
	C18:3n-3	150	140	140
	C18:4n-3	0.56 y	0.52 x	0.53 xy
	C20:3n-3	3.61	3.29	3.40
	C20:5n-3[b]	2.97 y	2.69 x	2.62 x
	C22:5n-3[b]	12.7 y	11.0 x	11.5 x
	C22:6n-3[b]	2.66 y	2.34 x	2.48 x
	n-3 PUFA	170 y	160 x	160 x
	total PUFA	790	770	780
	9t,12t-18:2	2.55 x	2.67 y	2.88 z
	9c,12t-18:2	2.22 x	2.34 y	2.51 z
	9t,12c-18:2	1.09 x	1.21 y	1.30 y
	total trans 18:2	5.9 x	6.2 x	6.7 y
	9c,11t-CLA	1.66 y	1.42 x	1.46 x
	10t,12c-CLA	0.25 x	0.30 y	0.30 y
	ditrans CLA	0.73 x	1.31 y	1.02 y
	total CLAs	2.6	3.0	2.8

C*trans*18:1	24	25	26
total *trans* FA	33	34	35
Ratio n-6/n-3	7.8	7.9	7.8
α-tocopherol content[a]	2.93 x	2.68 y	2.45 z
TBA value [abcdef]	36 x	108 y	656 z

Abbreviations used: FA = fatty acids; SFA = Saturated fatty acids; MUFA = Monounsaturated fatty acids; PUFA = Polyunsaturated fatty acids; CLA = Conjugated linoleic acid;

[a] Fatty acid composition expressed as mg FA/100 g meat; α-tocopherol content expressed as mg α-tocopherol/ kg meat; LHP content expressed as mmol CHPeq/ kg meat; TBA value expressed as μg MDA/ kg meat.

[b] Interaction of cooking x source of fat significant at P≤0.05. P values were obtained from multifactor ANOVA, n=84.

[c] Interaction of cooking x αTA supplementation significant at P≤0.05. P values were obtained from multifactor ANOVA, n=84.

[d] Interaction of cooking x dose of fat significant at P≤0.05. P values were obtained from multifactor ANOVA, n=84.

[e] Interaction of cooking x dose x source of fat significant at P≤0.05. P values were obtained from multifactor ANOVA, n=84.

[f] Interaction of refrigeration x source of fat significant at P≤0.05. P values were obtained from multifactor ANOVA, n=74.

x,y,z Values in the same row for a certain factor bearing no common letters are statistically different (P≤0.05). P values were obtained from multifactor ANOVA, n=84 for the effect of cooking (raw vs. cooked meat) and n=72 for the

refrigeration effect (cooked vs. refrigerated cooked meat). Letters were obtained by means of the Scheffé's test ($\alpha=0.05$).