

How to Produce 20 POUNDS OF BEEF FOR LESS THAN ONE DOLLAR

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Eighteen field trials in five Northern California counties involving 739 individually weighed calves were conducted by farm advisors on cooperating ranches from 1969 to 1974.

The purpose was to determine the effect of DES and RAL implants in suckling calves on weaning weight and on subsequent performance.

The following results were obtained:

- Suckling steer calves receiving one implant of 12 or 15 mg. DES gained 20 pounds (7 percent) more than controls and 11 pounds (3 percent) more than calves implanted with 36 mg. RAL over the 185 days between implanting and weaning.

- Suckling heifer calves receiving one 36 mg. implant of RAL gained 21 pounds (11 percent) more than controls.

- Implants at suckling age had no effect on postweaning gains if the animals received growth stimulants during the growing and finishing period.

- Postweaning gains were slightly depressed in calves receiving no growth stimulant following suckling calf implants, but total gain to slaughter still favored implanted calves.

- Carcass grade and cutability were not adversely affected by suckling calf implants except in one trial where calves received a third implant within 65 days of slaughter.

- Heifers receiving 36 mg. RAL at suckling age showed some teat elongation but had no adverse side effects and no fertility problems when bred at yearling age.

A survey of farm advisors in Nor-

thern California indicated that surprisingly few cow-calf producers utilize DES or RAL implants to increase gains in suckling calves. Various reasons were given: (1) the ban on DES stopped some producers and they have not started again (many suppliers do not stock DES — it must be special-ordered); (2) they do not know DES is now legal (it may be implanted up to 120 days before slaughter, and RAL up to 65 days prior to slaughter); (3) they feel buyers use implants as a bargaining point (as they used to do with brockle faces; 12 to 15 mg. implanted calves usually show more bloom, but levels of DES over 36 mg. may cause high tail heads); (4) they think calves have to be on full feed to benefit from implants (grass gains are improved too).

Cooperating ranches and counties included Eidman, Sexton and Groteguth in Glenn; Alvernaz, Keegan and Mathis in Colusa; Carr and Butte Creek in Sutter; Wiswall in Tehama; and Friden in Siskiyou.

Calves in Northern California are normally branded and marked at 1½ to 3½ months of age. The trials

consisted of implanting at random a group of calves and leaving a similar number of controls. All calves were identified and individually weighed. Results were measured by individually weighing the calves at weaning time about six months after implanting and observing them for any side effects. In several trials individual postweaning and carcass data were obtained. Analysis of variance was used to determine significance of mean differences.

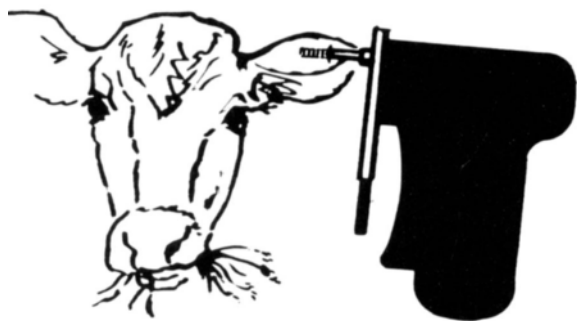
Available literature was reviewed and comparisons made with local results.

The results of Northern California trials up to weaning age are shown in table 1 for steers and table 2 for heifers. For comparison, several research station results are shown in table 3. In most of the trials, implanted steers gained more than controls — 10 to 30 pounds more for DES implants and 0 to 24 pounds more for RAL. RAL-implanted animals experience smaller and more variable weight gains than DES-implanted cattle. Wilson (Sutter County) found that RAL response

TABLE 1. EFFECT OF DES AND RAL IMPLANTS ON GROWTH OF STEER CALVES TO WEANING.

Cooperator	County	Year	No.	Initial wt.	Days	ADG lowest group	Gain implant to weaning			Gain increase % & (lbs)		
							No im-plant	36 mg RAL	12-15 mg DES	No im-plant	RAL	DES
Eidman	Glenn	1969	34	329	148	1.97	292	--	315	0	--	8% (23*)
Wiswall	Tehama	1969	49	116	229	1.62	372	--	389	0	--	5% (17*)
Friden	Siskiyou	you	20	166	195	1.68	328	--	351	0	--	7% (23*)
Alvernaz	Colusa	1971	19	208	193	1.53	302	295	320	0	-2% (-7)	6% (18)
Alvernaz	Colusa	1972	22	216	180	1.53	--	279	276	--	0	-1 (-3)
Groteguth	Glenn	1971	16	162	200	1.55	--	309	333	--	0	8% (24)
Groteguth	Glenn	1972	30	217	200	1.13	--	226	234	--	0	4% (8)
Sexton	Glenn	1972	73	737	721	1.67	--	368	385	--	0	5% (19*)
Carr	Sutter	1972	63	770	134	2.11	292	283	292	0	-3% (-9)	0
Carr	Sutter	1973	79	356	86	2.07	178	196	204	0	10% (18*)	15% (26*)
Butte C.	Sutter	1974	82	384	76	1.61	122	146	--	0	20% (24*)	--
Same trial				125	1.67	209	229	--	0	10% (20*)	--	
Mathis	Colusa	1974	51	281	232	1.58	366	--	399	0	--	9% (33*)
Unweighted average	538 head									0	+4% (9)	+7% (20)
	12 trials			245	185	1.81						

*P < .05



Implants should be placed between the skin and cartilage in the back of the ear at least 1 inch away from the head.

decreases rapidly after 75 days and the manufacturer's recommendation is implantation each 100 days. Heifers, however, seem to respond as well to 36 mg. RAL as steers do to 12 or 15 mg. DES.

In one trial in Humboldt County (correspondence with Lawrence), teat length was longer in DES and RAL heifers. Bell found a similar effect in lambs. In general, the rancher's opinion was that the implanted calves showed more bloom and fleshiness than did controls.

In spite of the teat growth, calving records on Sexton, Keegan, and Groteguth ranches show no effect on fertility of heifers bred to calve as two-year-olds.

The effect of implants at suckling age on postweaning gains and carcass traits is shown in table 4 for Northern California and in table 5 for some experiment station reports.

Individual weights and carcass measurements were taken, and in the trials where the postweaning treatment was recorded, there was no consistent difference in postweaning gain where DES or Synovex implants were used or where DES was fed (before FDA restrictions). Two Iowa studies showed depressed gains where postweaning growth stimulants were not used; however, preweaning plus postweaning gains still favored the calves implanted at suckling age. Minnesota, Kansas, and Tennessee tests showed depressed postweaning gains, but use of growth stimulants after weaning were not reported.

The Northern California tests on the other hand showed trends for increased gain when suckling calves were implanted again in the feedlot compared to those implanted for the

first time in the feedlot. In all tests the final weight favored the calves implanted at suckling age.

In the Glenn County experiments, marbling score was not affected by the suckling calf implant. In the Siskiyou test, marbling score was lower in the calves that had a total of three implants. The final implant

was 65 days before slaughter. Cutability did not suffer as a result of preweaning treatment.

Monte Bell is a Farm Advisor, [Glenn & Colusa Counties]. Ralgro, trade name for RAL, was supplied by Commercial Solvents Corporation for many of these studies.

TABLE 2. EFFECT OF DES AND RAL IMPLANTS ON GROWTH OF HEIFER CALVES TO WEANING.

Cooperator	County	Year	No.	Initial wt.	Days	ADG Lowest group	Gain implant to weaning			Gain increase % & (lbs.)		
							No. implant	36 mg RAL	15 mg DES	No. implant	RAL	DES
Friden	Siskiyou	1970	21	150	195	1.67	325	--	329	0	--	1% (4)
Groteguth	Glenn	1971	7	174	200	1.47	293	313	--	0	7% (20)	--
Groteguth	Glenn	1971	11	319	200	1.15	279	250	--	0	9% (21)	--
Sexton	Glenn	1972	38	241	221	1.46	322	347	--	0	8% (25)	--
Sexton	Glenn	1974	62	248	172	1.46	251	268	--	0	7% (17)	--
Keegan	Colusa	1974	62	252	109	1.33	145	169	--	0	17% (24)	--
Unweighted average						201	156	1.42		0	11% (21)	--

*P < .05

TABLE 3. EFFECT OF DES AND RAL IMPLANTS ON GROWTH OF CALVES TO WEANING -- A REVIEW.

Experiment station	Years	Sex	No.	Initial wt.	Days	Gain implant to weaning			Gain increase over	
						No. Implant	RAL	DES	No. implant	DES
Oklahoma	56-61	S	210	200-350	R 125	234	--	256	--	9% (22)
Oklahoma	56-61	H	173	200-300	R 125	216	--	245	--	13% (29)
Minnesota	55-63	S	115	--	--	259	--	277	--	7% (16)
Kansas	57-64	S	204	--	--	387	--	404	--	4% (17)
Mississippi	53-64	S	395	--	--	181	--	195	--	8% (14)
Tennessee	63-64	S	219	--	--	219	--	233	--	6% (34)
Michigan	68	S	70	--	--	141	--	137	--	-1% (-4)
No. Dakota	67-70	S	103	180	113	210	--	212	--	1% (7)
Iowa	59-60	H	54	235	R 120	201	--	220	--	14% (28)
Iowa	59-60	H	52	225	R 120	185	--	211	--	14% (25)
California	70	S	40	--	--	150	--	184	--	23% (34)
Montana	68-69	S	159	145	146	275	285	281	4% (10)	2% (6)
Indiana	70	S	70	--	--	268	256	267	-4% (-12)	0 (-1)
Nevada	--	S	04	188	205	105	137	126	30% (32)	22% (23)
Oregon	72	S	30	268	106	276	215	--	4% (9)	--
Unweighted average						2062			5% (10)	7% (16)

TABLE 4. EFFECT OF DES AND RAL IMPLANTS IN SUCKLING CALVES ON POST WEANING GAINS AND CARCASS TRAITS.

Cooperator	No.	Sex	Pre-weaning treatment	Post-weaning treatment	Gain weaning to sltr.	Carcass wt.	Carcass % ^{1/2}	Marbling score ^{1/2}	Cutability %	Retail cuts/day of age
Eidman	17	S	0	DES fed	2.33	649 ^{2/3}	1.34 ^{3/4}	17.5	48	.65 ^{4/5}
	17	S	DES 15 mg	DES fed	2.31	691 ^{2/3}	1.43 ^{3/4}	18.0	48	.68
Friden	10	S	0	2X DES 30 mg	2.07	594	1.25	14.7 ^{3/4}	51	.67
	10	S	DES 30 mg	2X DES 30 mg	1.99	606	1.28	13.4 ^{3/4}	51	.64
	10	H	0	2X DES 15 mg	1.67 ^{3/4}	513 ^{2/3}	1.25 ^{3/4}	13.3 ^{3/4}	52	.55
	11	H	DES 15 mg	2X DES 15 mg	1.80 ^{3/4}	536 ^{2/3}	1.14 ^{3/4}	11.1 ^{2/3}	52	.57
Sexton	26	S	RAL 36 mg	DES 30 mg	2.23	656	1.38	12.1	49	.67
	27	S	DES 15 mg	DES 30 mg	2.22	673	1.41	12.0	49	.69
	9	H	0	Synovex H	2.42 ^{2/3}	581 ^{2/3}	1.29	14.0	49	.54
	10	H	RAL 36 mg	Synovex H	2.51 ^{2/3}	508 ^{2/3}	1.34	12.7	50	.67

^{1/2} 13-14-15 = small; 16-17-18 modest

^{2/3} P < .001

^{3/4} P < .05

^{4/5} P < .01

^{5/6} P < .10

TABLE 5. EFFECT OF DES IMPLANTS IN SUCKLING CALVES ON POST WEANING GAINS -- A REVIEW.

Experiment station	Years	Sex	No.	Post. wean. treat.	Gain post weaning treatment		Change from 0 % (lbs.)	Gain pre-weaning plus post weaning		Change from 0 % (lbs.)
					0	DES		0	DES	
Oklahoma	56-61	--	59	DES fed	365	367	1% (2)	597	627	5% (30)
Oklahoma	56-61	--	42	DES 24 mg	385	405	5% (20)	626	665	6% (39)
Minnesota	55-63	Steers	116	--	284	277	-2% (-7)	543	554	2% (11)
Kansas	57-64	Steers	204	--	462	450	-3% (-12)	849	854	1% (5)
Tennessee	63-64	Steers	46	--	428	402	-6% (-26)	647	635	-2% (-12)
Iowa	59-60	Steers	58	0	236	219	-7% (-17)	437	448	3% (11)
Iowa	59-60	Heifers	52	0	213	210	-1% (-3)	398	421	6% (23)
California	70	Steers	40	DES 36 mg	406	404	-1% (-2)	556	588	6% (37)