Zootechnical performances of Calabrese pigs reared in free range management

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RIASSUNTO – Performance zootecniche di suini Calabresi in allevamento semi-brado – *La ricerca è stata condotta su suini autoctoni Calabresi allevati nella zona di origine. Su 200 soggetti sono state valutate le performance riproduttive e produttive. Per eliminare le fluttuazioni casuali e per uniformare l'andamento del peso vivo di ciascun soggetto è stata utilizzata la funzione logistica di Gompertz. I risultati ottenuti evidenziano che l'efficienza biologica è risultata più vantaggiosa nelle femmine sia alla nascita sia all'età pubere, mentre i maschi risultano più efficienti solo dopo i nove mesi di età. Probabilmente, quanto osservato potrebbe essere attribuito sia a una predisposizione genetica sia a una scelta gestionale dell'allevatore tesa a migliorare l'efficienza riproduttiva delle femmine.*

KEY WORDS: local swine breeds, zootechnical performances, free range management.

INTRODUCTION – Calabrese breed takes its origin from ancient iberian and italic swine populations (Giannone, 2002). In the last century, this genotype was reared in many areas of Calabria region and it was distinguished in numerous 'local types' (Mascheroni, 1927). It has been always reared according to the free range management. This breed is characterised by an high adaptability and frugality with a good damming ability in sows and marked sexual instinct in boars (Pianelli, 2001 and 2002). For this reason, this population, that furnishes very appreciated seasoned sausages, could be employed in safeguard of rural areas (Grasso *et al.*, 1995; Matassino, 1988 and 2002). Nevertheless, the profitable utilise of this local genotype, is linked to a better knowledge of its productive and reproductive characteristics and, at the same time, to a growth of its numerical consistence (at present, about 800 heads). The aim of this trial was to deepen the knowledge on reproductive and productive aspects in Calabrese breed.

MATERIAL AND METHODS – The study was carried out on 200 swine coming from a regional animal breeding farm (ARSSA) and reared in farms situated in Calabria region. On pigs, 80 males and 120 females, productive performances were studied; moreover, on females only, reproductive performances were studied. Data were monthly collected from stable books and from direct measurements on animals. Live weight (LW) was normalised for each pig utilising Gompertz function [LW=birth weight x e^ (birth biological efficiency/puberty biological efficiency x (1-e^ (-puberty biological efficiency x adult live weight)))] (Lebreton and Miller, 1982; Parigi Bini and Someda De Marco, 1989). Successively, were determined: a) daily weight gain (DWG); biological efficiency (DWG/LW); c) zootechical efficiency (DWG/LW $^{0.75}$). Individual energy costs of production were determined considering the energy value of the diet furnished at the recovery, including also the parental energy consumption (total energy cost of parents /total number of produced pigs).

RESULTS AND CONCLUSIONS – The principal results can be summarised as follows: farrowing interval, 171 days; fecundity, 7.6 piglets/delivery; birth weight 1.3 kg; death rate about 20% (Table 1). Probably, the high incidence of mortality is consequence of the type of rearing, and could be reduced increasing the frequency of sanitary controls.

Table 1.   Reproductive parameters.

Parameter	Mean	c.v., %
weaning – conception interval, d	14.77	25.9
length of gestation, d	115.8	0.5
length of lactation, d	40.11	9.5
farrowing interval, d	170.7	3.2
delivery / sow / year no.	2.14	3.3
births / delivery, no.	7.62	17.0
live born / delivery, no.	7.14	12.4
weaned piglets / delivery, no.	5.72	10.0
weaned piglets / sow / year, no.	12.19	7.6
birth weight, kg	1.29	9.2
weaned piglets weight, kg	8.09	2.7
piglets death rate (birth – weaning), %	19.87	28.7
death rate (birth – puberty), %	19.93	31.0

Males reached puberty 31 day after females (332 *vs* 301) (Table 2). At this age weights of males and females were 77.3 and 69.9, respectively. Biological efficiency, at birth and at puberty, resulted better in females.

Table 2.   Parameters derived from logistic function.

Parameter	Males		Females	
	mean	c.v., %	mean	c.v., %
birth LW, kg	1.39	14.5	1.19	20.8
puberty LW, kg	77.3	8.1	69.9	6.9
adult LW, kg	210.0	8.1	190.0	6.9
puberty, d	332	1.9	301	0.7
puberty DWG, g	306.8	2.2	299.8	1.8
birth biological efficiency, g/kg	14.85	7.6	15.60	8.3
puberty biological efficiency, g/kg	3.97	6.3	4.29	5.5

Females showed a better efficiency until the age of 9 months, while only after this period males resulted the better group (Table 3). These results could be explained with the higher rearing accuracy put on females in the first period of life (until puberty) in order to optimise their future reproductive performances.

Until the age of 12 months males showed an energy cost of production in tendency lower than females (Table 4). Trials we are completing on *post mortem* performances and on quality of meat of Calabrese pigs, will furnish a more complete knowledge on this local genotype and on its future role in the production of typical products in Calabria and in its confining regions.

Table 3.   Live weight (LW), daily weight gain (DWG), biological and zootechnical efficiency at typical ages.

Age, d	LW, kg		DWG, g		Biological efficiency, g/kg		Zootechnical efficiency, g/kg$^{0.75}$	
	mean	c. v.%	mean	c. v.%	mean	c. v.%	mean	c. v.%
				Males				
1	1.39	14.7	21	7.1	14.85	7.6	16.11	4.0
60	11.04	17.6	130	8.7	11.74	10.7	21.41	15.5
90	15.38	15.5	160	7.0	10.42	10.0	20.63	13.4
180	33.73	10.9	245	3.6	7.27	8.1	17.53	9.0
270	58.44	7.9	297	2.2	5.08	6.2	14.05	6.4
360	85.84	6.2	305	2.2	3.55	4.4	10.81	4.9
540	135.56	5.1	235	4.4	1.74	0.7	5.92	4.0
				Females				
1	1.19	21.0	19	12.6	15.60	8.3	16.29	3.8
60	11.41	23.5	138	15.5	12.11	12.9	22.25	5.6
90	16.03	20.3	171	11.8	10.64	12.1	21.29	6.0
180	35.38	13.3	255	4.9	7.22	9.9	17.61	6.0
270	60.60	9.2	297	2.2	4.90	7.7	13.68	5.1
360	87.38	6.9	290	1.8	3.33	5.5	10.18	3.6
540	132.70	5.4	204	4.3	1.54	1.3	5.22	0.1

Table 4.   Individual energy costs of production, Mcal.

	Males	Females	All
		Net energy	
Weaned piglet	247.6	248.8	248.2
Pig 12 months	1047.5	1066.8	1057.2
Pig 18 months	1862.4	1861.4	1861.9
Weaning - 12 months interval	799.9	818.0	809.0
Weaning - 18 months interval	1614.8	1612.6	1613.7

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