



Università degli Studi di Perugia

RABBIT REPRODUCTION

Cesare Castellini, Alessandro Dal Bosco

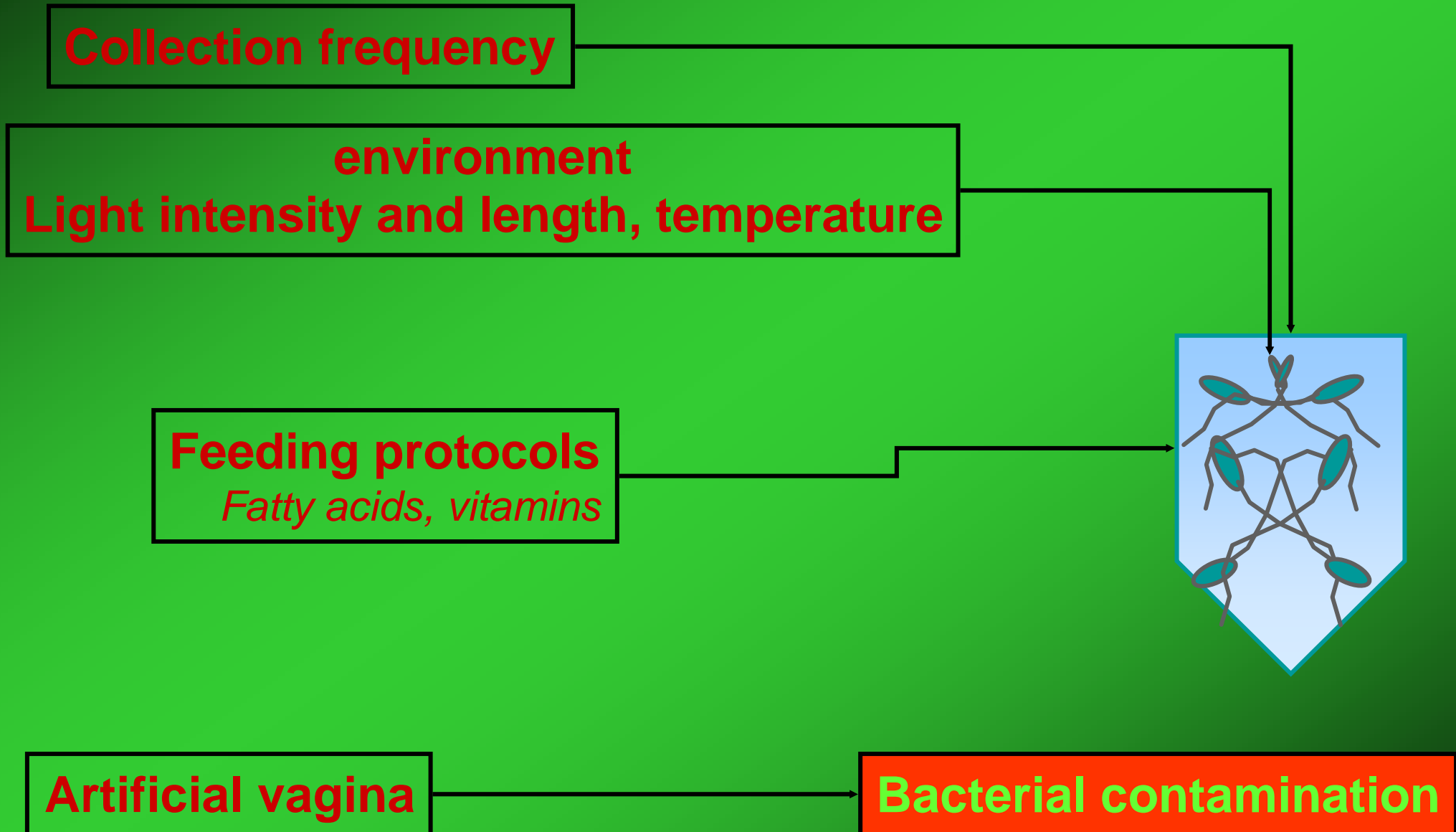
(cesare@unipg.it, dalbosco@unipg.it)

Dpt. Applied Biology - Perugia University, BORGO
XX GIUGNO, 74 (ITALY)

RABBIT BUCK and SEMEN

1. Factors affecting semen production
2. Semen processing
3. Accessory glands and sperm metabolism
4. Spz as a target cell

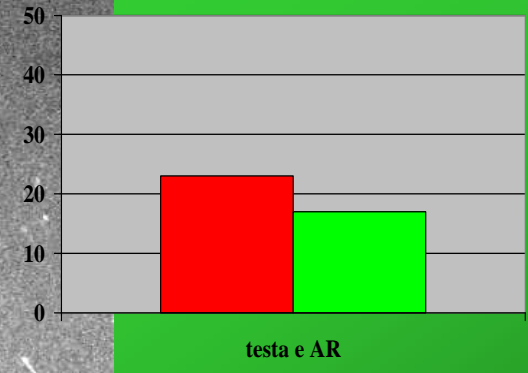
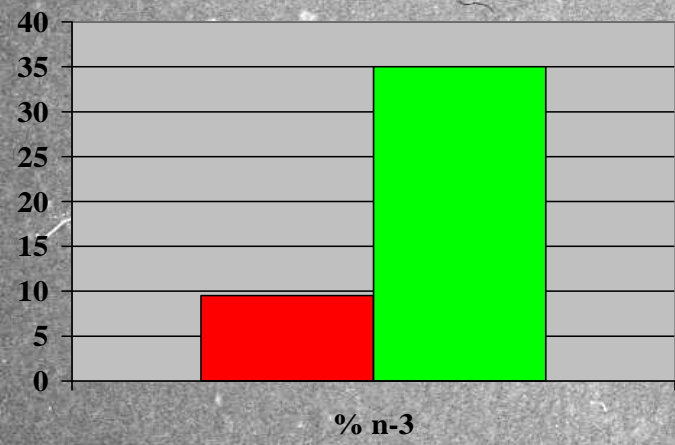
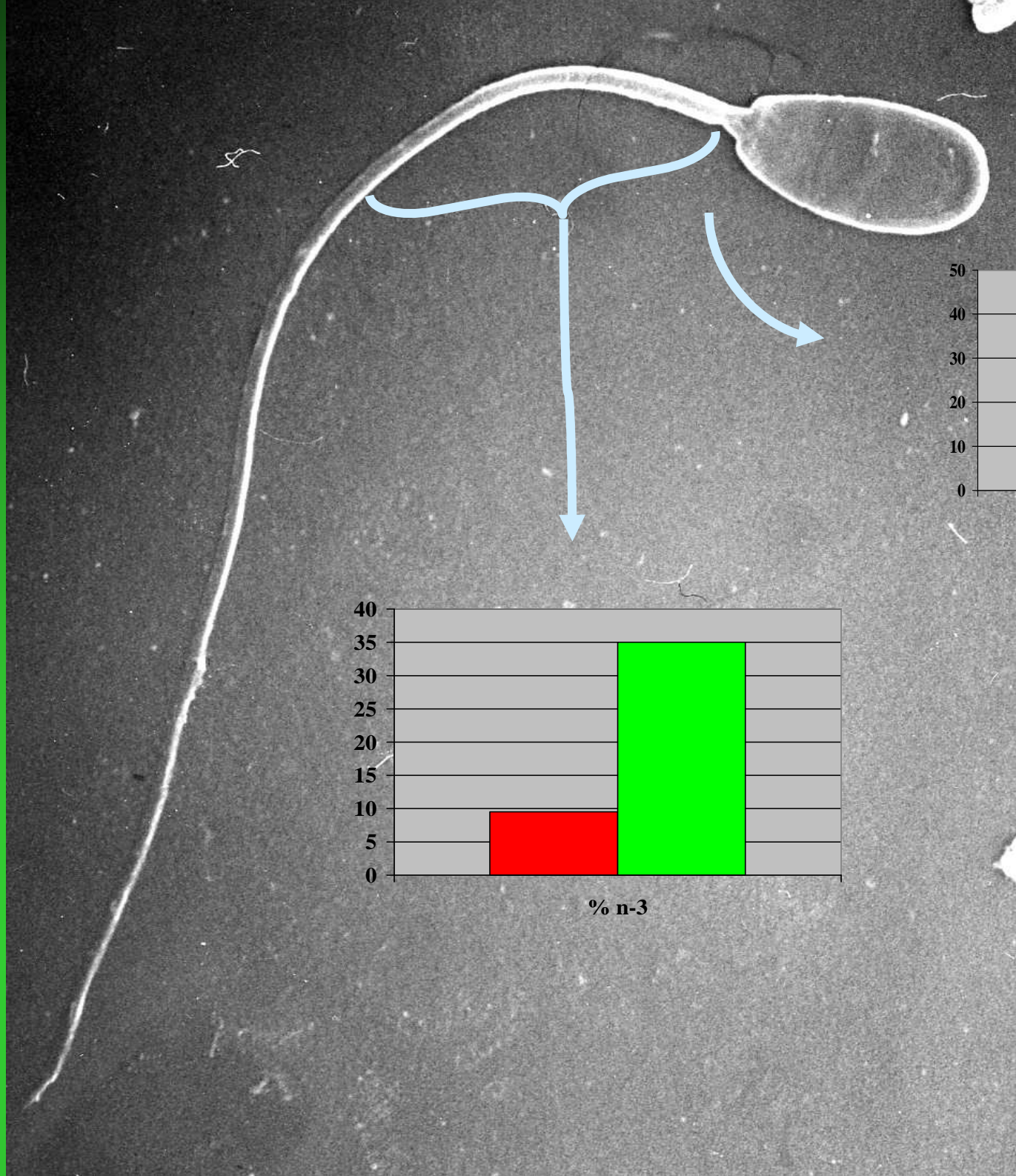
1. Main *in vivo* effect



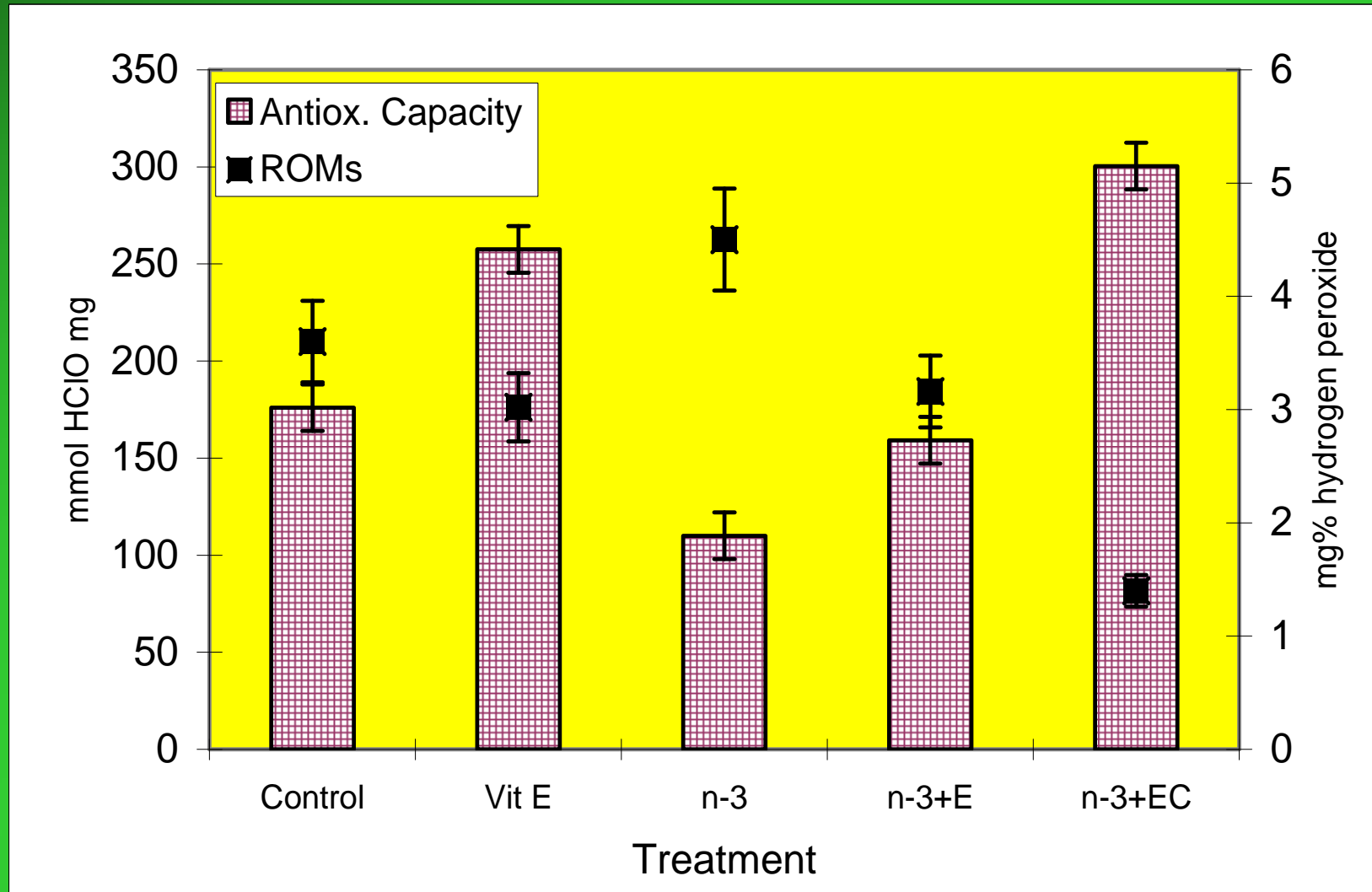
1. Feeding protocols (fatty acids, vitamins)

- PUFA are selectively fixed in different sperm tracts
- vitamin E is effective in reducing lipid peroxidation of semen
- vitamin c (0.5 g l^{-1}), in presence of vitamin E, reduces ROMS, lipoperoxides and restore the oxidated tocopherol radicals od sperm

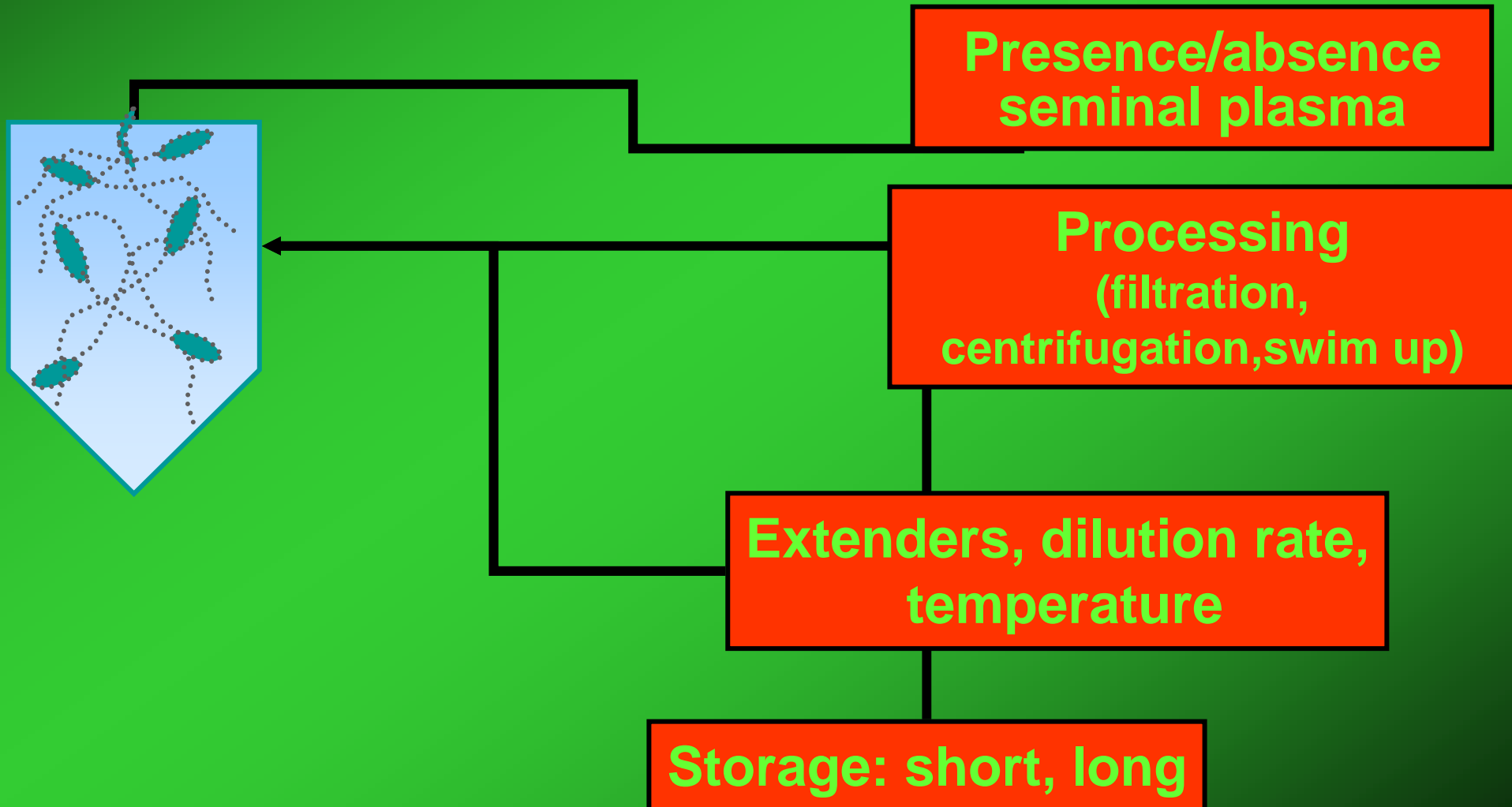
1. n-3 enrichment in sperm tract



1. Seminal ROM and antioxidant capacity of bucks fed different diets

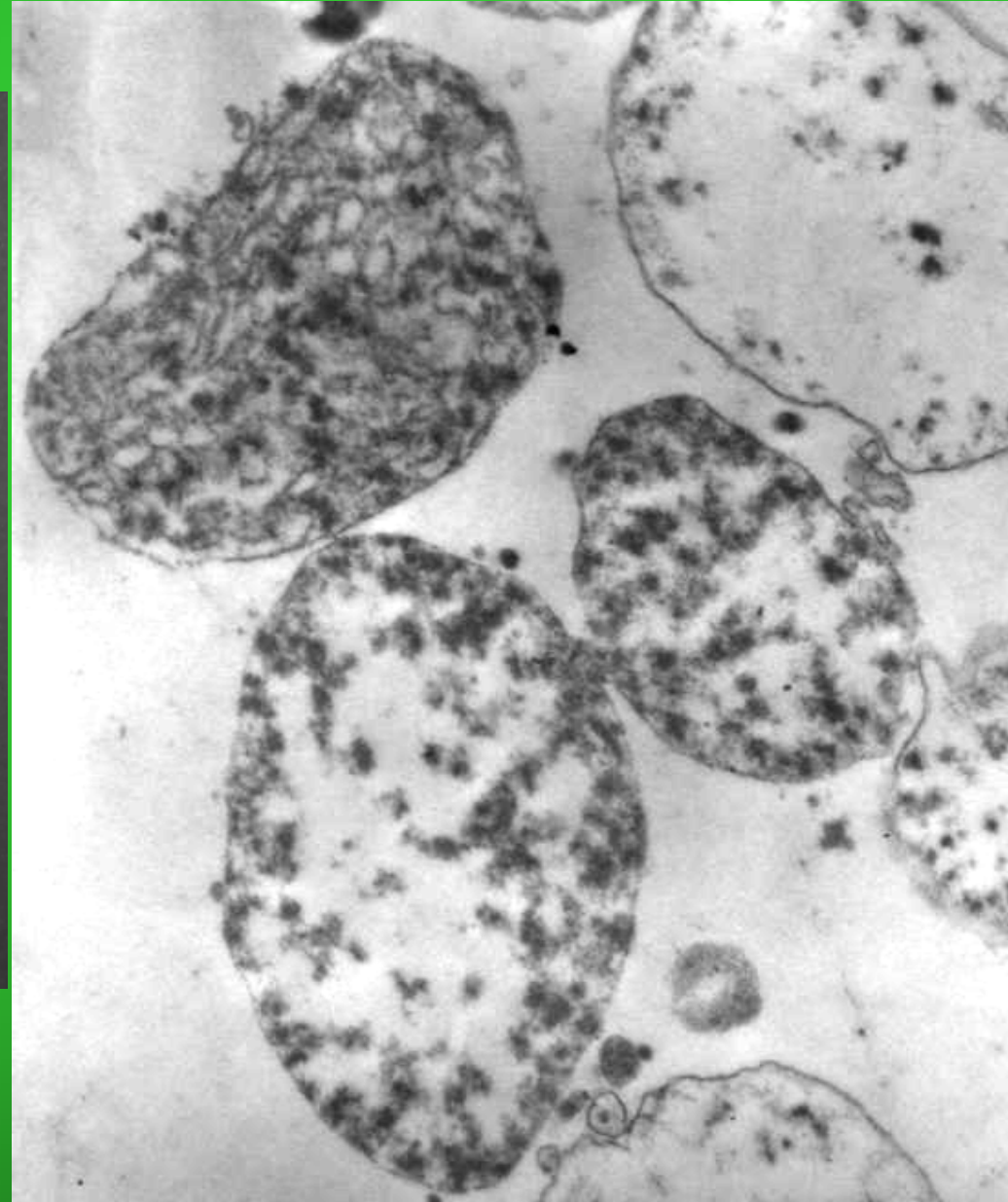
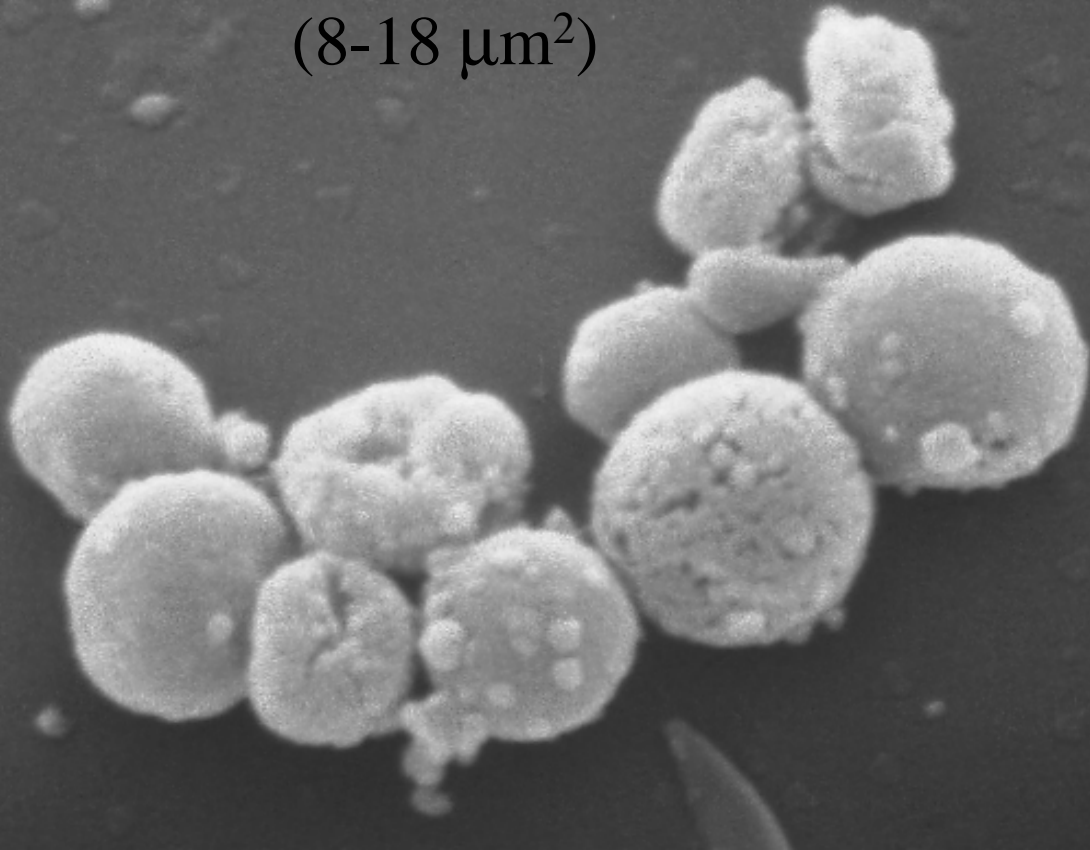


2. Semen processing



3. Protoplast

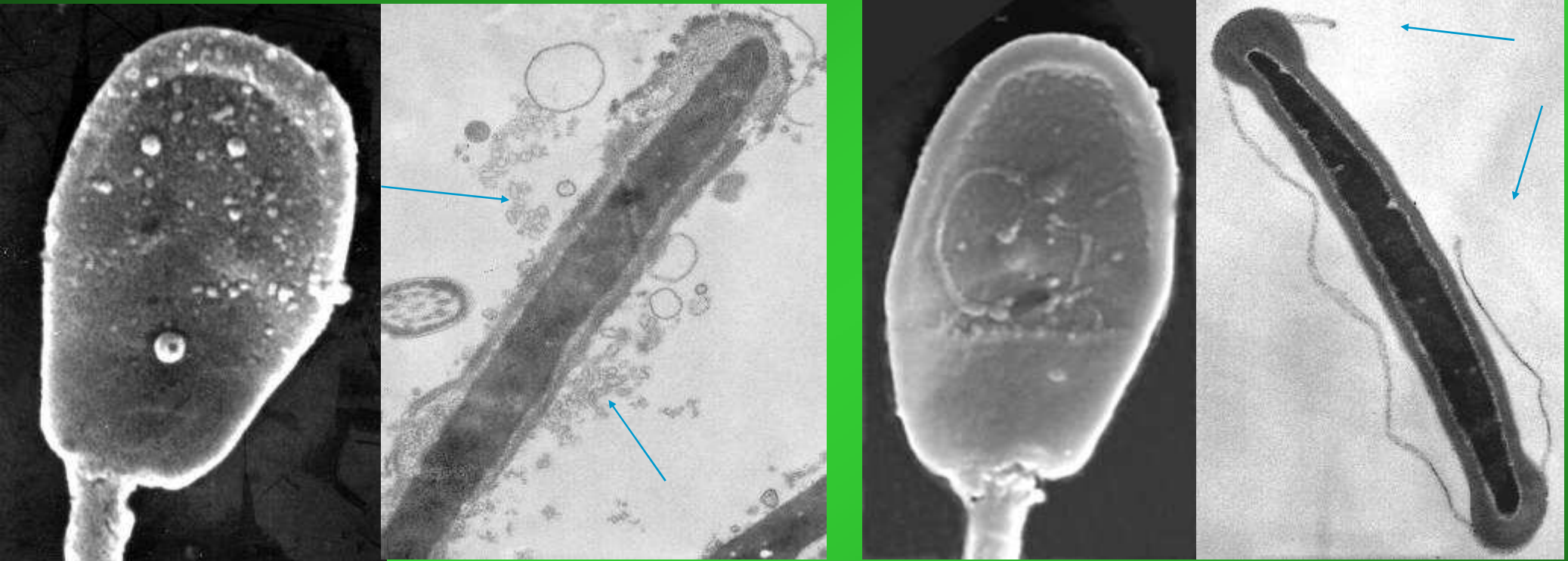
(8-18 μm^2)



4. Rabbit as a sperm model for toxicological studies

- Easy management of animals and low maintenance cost
- Easy collection of semen (by artificial vagina) without pain
- Knowledge of ultra-structure and spermatozoa physiology
- It's a mammal

4. Ultrastructural damage: $(C_6H_5)_4AsCl \times H_2O$

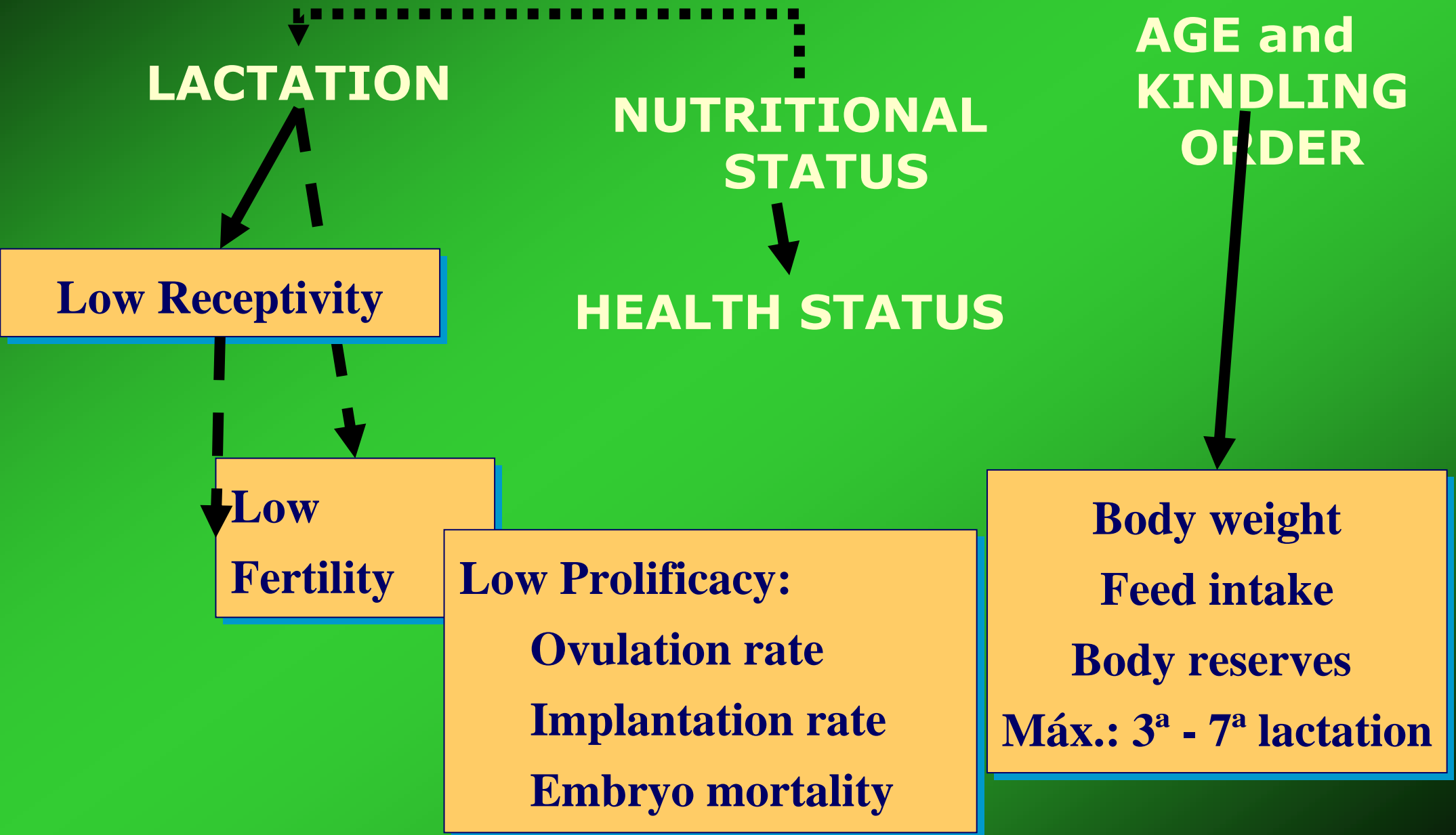


Bulges and vesicles of plasmatic membrane

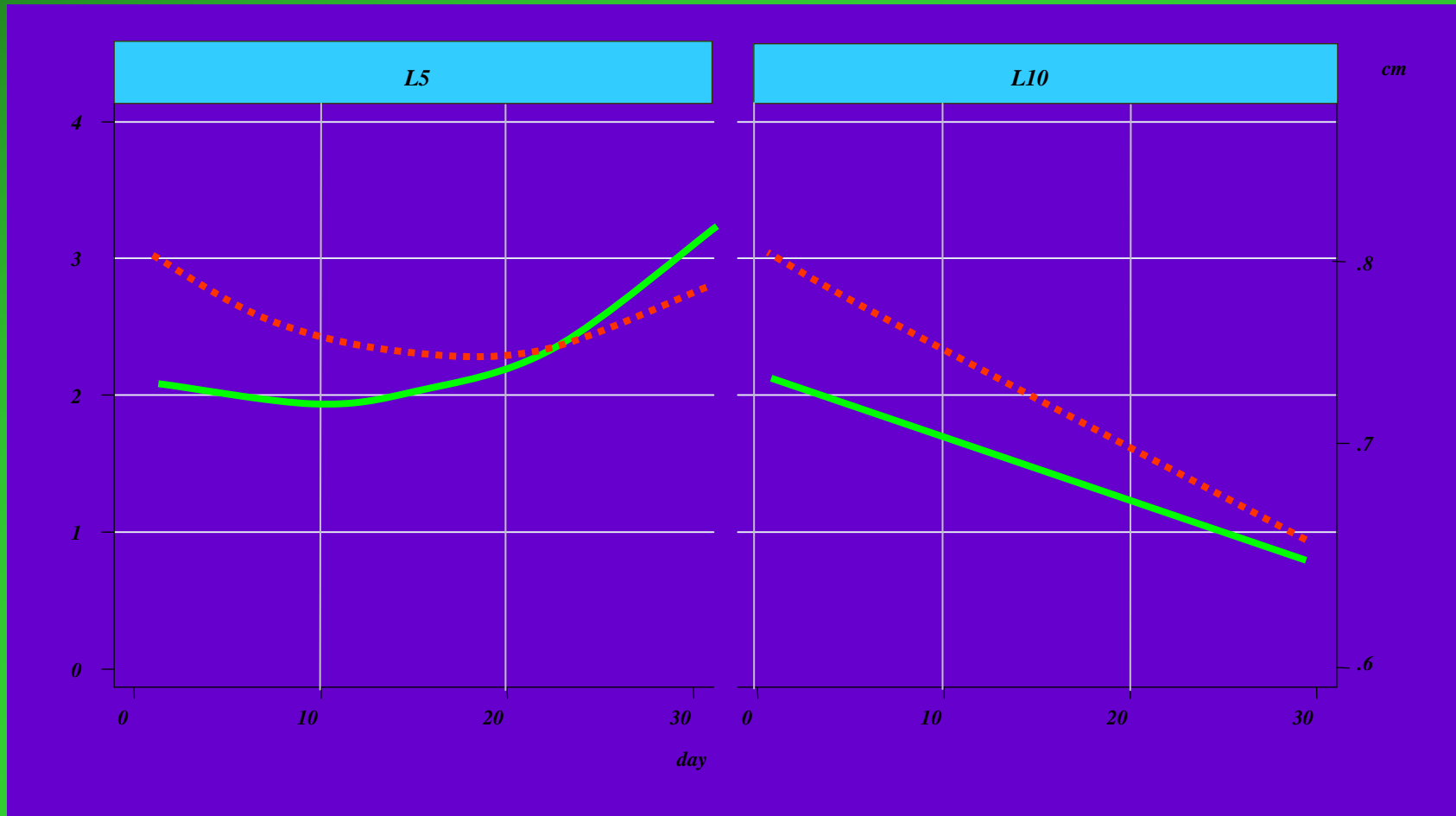
RABBIT DOE

1. **Factors affecting repro. performance**
2. **Comparison of different repro rhythms (RR)**

Factors affects ovarian activity



Effect of litter size on perirenal fat thickness (green) and BCS (red) during lactation

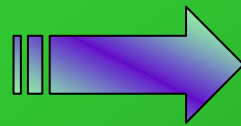


Effect of RR on body condition

Parity order		primiparous		pluriparous	
		C	PW	C	PW
Body weight at AI	g	4100	4160	4130	4265
Perirenal fat thickness	Cm	0.65	0.72	0.66	0.85
Estimated fat weight	g	24.9	29.9	25.8	43.5

More extensive RR

- Virtually eliminate the hormonal and energy antagonism
- Lower production partially compensate with higher fertility rate
- Critical point



Excessive fat deposit
(+18%)

Fertility rate

Sexual receptivity		Lactation stage		Body fat classes	
R+	R-	dry	lactation	Good	Extreme
R+		93.2	81.1	Good	
R+		78.5	66.3	Extreme	
R-		64.8	45.7	Good	
R-		52.3	28.5	Extreme	