

# Si@lleva: a multi-specie software to optimise in farm data collection, extension service and herd management



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## | What is Si@lleVa

Livestock farm management is a complex reality and the need of a farm manager is to keep under control all possible criticalities: this means to identify, understand and manage complex problems, from production to health to economy, and even face social and ethical challenges, such as animal welfare. To accomplish this duty, farm manager needs to analyse the production process through accurate information both simple and aggregate on the different processes going on in his activity. This means identifying process anomalies, acting corrective actions, rechecking the production process in order to reach an optimization. After this, a continuous monitoring of the process is needed in order to keep optimal state, as in a PDCA cycle. Si@lleVa is a software that helps the farmer to have a management as close as possible to a quality control, being set up in this way. Si@lleVa is a farm-level software directly linked to SiAll (Italian Breeders' Association central database for Performance Recording data) and to Government central database (Health Ministry, Italian authority for animal drugs). It is a multi-species software, dealing with dairy cattle, dairy goats and buffaloes, that allows Performance Recording data upload to central database, produces lists and extension service reports and gives other additional services for farm management. The software manages Performance Recording data and all other corporate events within a single database.

## | How it works

**In-farm data collection.** Si@lleVa allows different kind of users to upload data. Each user, according to his level of authorization, can upload Performance Recording data (only official technicians), vital and reproductive daily events (both farmer and other technician), health data (both farmer and veterinarian). Uploaded data validation is immediate, complies with a set of constrains that allow the creation of a valid national central data base. All users read and write on the same data base and data is subject to the same validation process. This means that all users are sure to browse the most up-to-date situation of the desired information. From a Performance Recording point of view, this is an excellent way to guarantee a farmer check on each input data avoiding possible mistakes/loss of information.

**Extension service.** Farm management is based on properly used information. Si@lleVa produces different reports, like Official Performance Recording forms and lactation certificate, reproductive performance reports, health risks reports (SCC or BHB analysis), herd zootechnical parameters report, Animal Welfare report. Despite all these reports, often breeders do not use them, maybe because they ignore their existence or they need advisors to read reports with them in order to extract basic figures. In other cases, the breeders may have too many reports and information on different sheets and this makes it difficult to quickly extract useful data. In order to put into practice the PDCA cycle and implement a quality control process, Si@lleVa focused on a Herd Summary Report, which is the main tool for extension service: it gives few and useful data, and can give a picture of the herd situation at a glance, highlighting farm performance problems. The Herd Summary is based on Performance Recording data, it is calculated by breed/species and supplies information at herd level of productive, reproductive and health performances. The report gives aggregate information for 7 issues: genetics, herd, production, milk contents, health, reproduction and other issues (culling, replacement, dry period length etc.). The report's most important news is the opportunity to make a benchmark with all other farms (between farms comparison) and a comparison with its own past performances (within farm comparison). The benchmark can be properly performed using Performance Recording data as data processing has made through central national database, gathered by a widespread and homogeneous measurement method over all the country. It is the control and improvement tool used to spot inefficiencies and to check if any applied corrective action has been effective. Benchmarks are taken on key zootechnical parameters with homologous farms in the same province, region or the whole nation.

**Herd management.** Vets lists, Alarm lists, Management lists are the base for farmer's daily routine's management, they are issued with the aim to make them easy. From insemination and pregnancy diagnoses information and other events or milk constituents levels, lists are created also to identify cows eligible to veterinarian checks as they reveal health, productive and reproductive risk factors. Si@lleVa allows connection with external government database to comply with sanitary treatments traceability and animal identification and movements registration. Other services provided by Si@lleVa involve the check of pure blood composition for crossbreeding management, the possibility to directly connect performance data with electronic milk meters and to manage semen stockage. Other important services involve reporting and alerting on sanitary state and welfare of farm's animals.



**Animal welfare report**

ANNO 2014										ANNO 2015																				
INDICATORI MENSILI					INDICATORI MENSILI					INDICATORI ANNUALI					INDICATORI ANNUALI															
Mesi	Controllo	Sog. Pres.	Sog. Cont.	DM	PAR	SCC	KEY	ACI		Mesi	Controllo	Sog. Pres.	Sog. Cont.	DM	PAR	SCC	KEY	ACI		Num. Cf	Sog. Pre.	Sog. Cont.	DM	PAR	SCC	KEY	ACI			
feb	10-02-2014	324	279	6,40	17,62	4,51	26,38	22,45		feb	12-02-2015	345	290	8,07	18,24	13,60	28,00	23,01			11	324	277	10,21	17,95	6,32	27,46	21,58		
mar	07-03-2014	323	295	6,81	17,56	4,09	23,88	22,38		mar	13-03-2015	352	295	6,62	18,05	20,98	28,00	22,85			8	338	280	7,76	17,94	14,31	28,99	25,90		
apr	09-04-2014	310	276	6,04	17,67	5,00	26,69	24,10		apr	15-04-2015	354	298	6,71	18,10	0,27	28,00	24,10												
mag	09-05-2014	318	275	11,88	17,62	6,40	25,19	23,29		mag	16-05-2015	354	296	6,95	18,15	20,18	28,00	22,41												
giu	05-06-2014	317	276	12,80	17,62	6,34	25,19	22,05		giu	16-06-2015	351	299	10,41	18,24	6,24	28,00	26,71												
lug	04-07-2014	316	275	13,45	17,44	5,78	25,19	24,42		lug	15-07-2015	290	245	11,10	17,44	22,27	28,00	21,41												
ago	01-08-2014	327	276	13,44	17,62	10,38	30,00	21,24		ago	11-09-2015	288	238	6,94	16,92	5,57	28,00	26,18												
set	01-09-2014	330	276	14,27	17,79	6,54	30,00	26,92																						
ott	01-10-2014	330	276	14,27	17,79	6,54	30,00	26,92																						
nov	03-11-2014	337	284	12,85	17,79	6,78	30,00	20,30																						
dic	03-12-2014	340	287	7,02	17,89	10,21	27,19	23,89																						

**INDICATORI ANNUALI**

Indicatore	Valore	Valore
DM	10,21	7,76
PAR	17,95	17,94
SCC	6,32	14,31
KEY	27,46	28,99
ACI	21,58	25,90

**INDICATORE GLOBALE**

Indicatore	Valore
DM	221
PAR	221

**Legenda**

- DM: Indicatore di fertilità riproduttiva
- PAR: Indicatore di fertilità
- SCC: Indicatore di qualità della mammella
- KEY: Indicatore di rischio di effetti subletali
- ACI: Indicatore di rischio di effetti subletali

**Interpretazione dei valori degli indicatori**

- 20-30 a Rischio
- 10-20 a Sufficiente
- 0-10 a Buono

**Interpretazione dell'Indicatore Globale**

- Numero di indicatori che rischiano nella classe buona
- Numero di indicatori che rischiano nella classe sufficiente
- Numero di indicatori che rischiano nella classe a rischio
- es: 800 migliore condizione di benessere
- 500 peggiore condizione di benessere

**Herd Summary**

GENETICS

BREEDING

PRODUCTION

MILK COMPONENTS

HEALTH

REPRODUCTION

OTHER

SINTETICO COLLETTIVO RAZZA Frisone Italiana									
GENETICA	PTT	Latte	Grossi	Proteine	Inbreeding				
Attende	341	170	0,00	0,00	4,44				
Provincia	351	170	0,00	0,00	4,44				
Totale	351	170	0,00	0,00	4,44				

CATEGORIA	DESCRIZIONE	ULTIMO CONTROLLO		MEDI ANNO		MEDI		VALORI TARGET	
		VALORE	DIFFERENZA	VALORE	DIFFERENZA	VALORE	DIFFERENZA	VALORE	DIFFERENZA
GENETICA	Età Media al Controllo (mesi)	50	50	50	50	50	50	50	70
	% Mucosa Lattazione	2,4	2,5	2,4	2,4	2,5	2,5	2,5	2,4
	Longevità Media Lattazione (gg)	207	212	207	204	204	204	193	144
	% Primipare	31	35	29	35	34	34	21	<10%
	Capri Controlati	88	91	88	88	70	58		
	Capri Presenti	111	114	110	90	50	72		
	% Controllo sulla Presenti	79	79	79	79	79	79		
	Produzione Latte al Controllo	24,2	29,0	30,5	18,5	18,5	18,5		
	Produzione Media su Capri Controlati	27,4	32,0	30,9	23,4	24,9	31,9		
	Produzione Media Primipare	27,9	31,7	28,1	23,7	23,9	31,4		
PRODUCTION	Produzione Media Secondipare	28,0	32,0	31,2	23,9	28,0	32,5		
	Produzione Media Purpure	27,9	31,1	32,0	24,4	26,9	33,1		
	Età Media Lattazione	52,0	52,0	52,0	50,0	50,0	50,0		
	Produzione Massima al Controllo	45,0	50,0	56,1	38,7	50,0	59,9		
	% Capri con Produzione > 40 kg	6,00	18,70	14,15	6,12	8,91	19,70		
	Persistenza Primipare	97,00	95,84	96,51	96,80	96,50	96,50		
	Persistenza Secondipare	99,27	94,25	94,74	94,27	94,27	94,27		
	Persistenza Purpure	94,22	94,12	93,52	94,27	94,28	94,28		
	Media Giorni al Fieno	70	70	70	70	80	80		
	MILK COMPONENTS	% Grassi (g/l)	4,22	3,94	4,03	3,77	3,89	3,89	
% Proteine (g/l)		3,35	3,26	3,34	3,30	3,30	3,30		
Urea (mg/g)		0	0	0	0	0	0		
Carburi Lattosici (g/l)		0	0	0	0	0	0		
Urea Solubile		4,80	4,22	4,29	3,70	3,42	2,70		
% Capri Grassi > 4,00 %		0	14,0	18,4	13,2	6,7	<10%		
% Capri Grassi < 2,50 %		0	0	0,8	4,7	4,7	<10%		
% Capri Proteine < 2,50 %		11,5	28,4	24,2	18,9	18,4	<10%		
% Capri Proteine > 4,40		27,0	14,8	27,4	13,3	17,1	<10%		
% Capri Proteine < 3,00		13,8	4,9	4,2	4,6	4,6	<10%		
HEALTH	% Capri Lattosici < 4,50 %	6,8	14,0	13,4	14,2	6,5	<10%		
	% Capri Urea < 36,00 mg/100	0	0	0	0	4,2	<10%		
	% Capri Urea < 20,00 mg/100	0	0	0	0	17,8	<10%		
	% Capri Carburati > 300000 (su tutti i capri)	42,5	39,4	38,1	42,1	34,8	22,4	<10%	
	% Capri Prati	42,1	35,4	37,1	24,4	25,6	25,6		
	% Resezioni per Gravidanza	1,8	2,6	2,1	2,4	2,4	2,4		
	Intervallo Medio Parto-Primo Rec (gg)	90	84	83	100	97	70	<10	
	Tasso di Conoscimento di Primo Servizio	12,6	13,9	12,1	4,9	10,5	10,0	<10	
	Intervallo Medio Parto-Concepto (gg)	140	154	149	140	137	137		
	% Non Reconoscibili < 10 gg	25,5	31,8	34,2	5,4	27,1	27,1	<10%	
REPRODUCTION	% Non Gravidati < 120 gg	47,8	40,8	40,2	27,4	26,6	27,1	<10%	
	Età Media al Primo Parto (mesi)	29	29	30	30	27	25	24	
	Durata Media Acciuta (gg)	74	70	70	70	69	69	64	
	% Capri con Durata Acciuta < 45 gg	19,7	18,2	21,0	14,1	17,1	4,3	0,0%	
	% Capri con Durata Acciuta > 80 gg	39,5	45,9	40,7	37,0	35,1	34,8	0,0%	
	Tasso di Mortalità								
	Percentuale Capri Invasi								
	Percentuale Capri Uccisi								
	Età Media alla Eliminazione (mesi)	87	50	70	70	84			

## | Conclusion

Si@lleVa is a software that allows the farmer and all the technical external figures involved in farm management to perform all the actions needed to identify critical problems, solve them and recheck the situation in a quality control process. All the tools Si@lleVa can provide allow a global and continuous monitoring of all the processes and even help the manager to make bureaucratic accomplishment regarding animal health, traceability and welfare easier and facilitates data flow for Performance Recording. Data quality and accuracy is guaranteed by having all records in a unique Performance Recording database (SiAll) and by the direct connections to Government databases.