I risultati della ricerca corrente condotta dall'Istituto Zooprofilattico dell'Abruzzo e del Molise «G. Caporale» Anno 2014

«Studio della flora autoctona in alcuni prodotti lattiero – caseari molisani»

Teramo, 9 Giugno 2015

Relatori : Lucio Marino
Ilaria Del Matto

IZSAM G.CAPORALE TERAMO

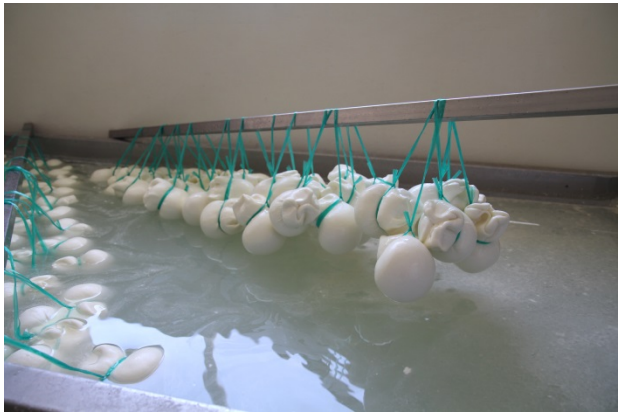
“Verifica e documentazione di elementi di tracciabilità reale, funzionalità e sicurezza per la valorizzazione dei prodotti lattiero – caseari in Molise”

- Studio della flora autoctona in prodotti lattiero-caseari molisani
- Studio della composizione chimica- merceologica dei prodotti selezionati
- Studio della capacità di contrastare microrganismi patogeni
- Esame sensoriale sulla base del panel test (QDA)
- Studio del legame con il territorio dei derivati del latte attraverso la RMN
- Creazione di una banca dati di profili metabolici per la tracciabilità dei prodotti
- Valorizzazione delle produzioni molisane in accordo con il Reg.(UE) n 1151/2012 specificatamente ai «prodotti di montagna»

IZSAM G.CAPORALE TERAMO

IZSAM «G. Caporale» Sezione di Campobasso

«Studio della flora autoctona in alcuni prodotti lattiero – caseari molisani»



Scopo del lavoro

- Rilevare **caratteristiche e modalità di produzione** nelle aziende produttrici
- Studiare le **variabili di processo e di prodotto**
- Progettare la **flow chart**
- Studiare un **campionamento adatto alle variabili di processo** su tre lotti di produzione per ciascun prodotto
- Studiare **l'andamento della flora autoctona** su ciascun prodotto

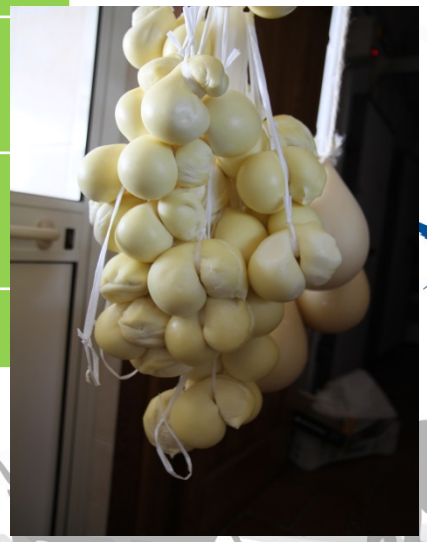
Campionamento Caseificio 1

MATRICE	CACIOTTA	CACIOCAVALLO
LATTE	3	3
CAGLIATA	3	3
FORMAGGIO DOPO SALATURA	3	3
FORMAGGIO IN STAGIONATURA	12	24
FORMAGGIO IN COMMERCIO	-	25
TOTALE	21	58

Differente tecnologia di produzione

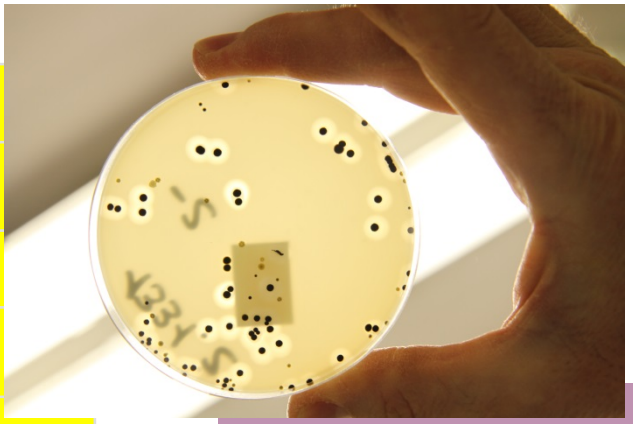
Campionamento Caseificio 2

MATRICE	SCAMORZA	CACIOCAVALLO
LATTE	3	3
CAGLIATA	3	3
FORMAGGIO DOPO SALATURA	3	3
FORMAGGIO IN STAGIONATURA	6	24
FORMAGGIO IN COMMERCIO	-	25
TOTALE	15	58



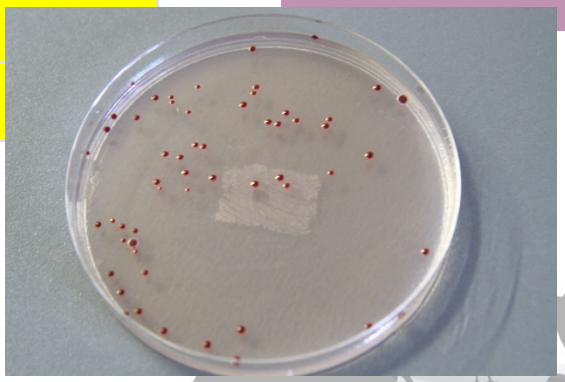
Differenza di forma e tempi di stagionatura ma stessa tecnologia di produzione

Determinazioni microbiologiche

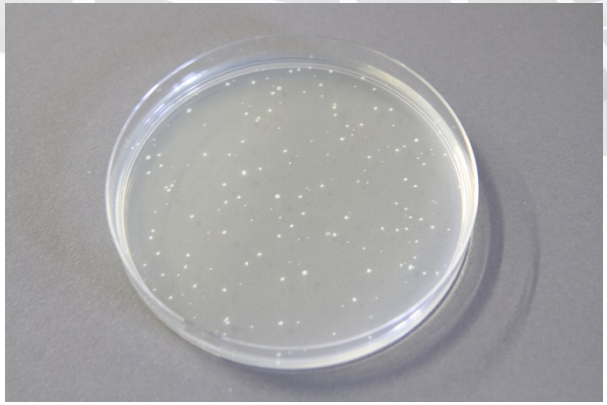


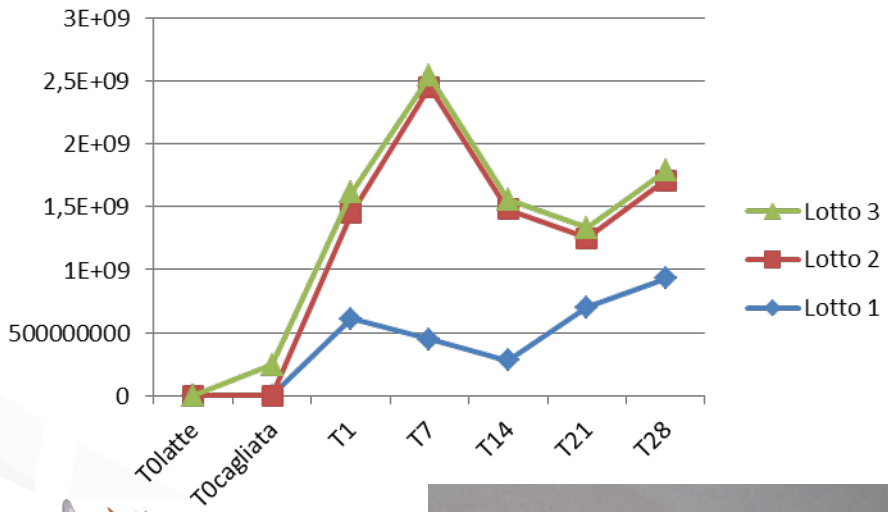
Numerazione enterobatteri
Numerazione enterococchi
Numerazione micrococchi
Numerazione muffe e lieviti
Numerazione carica batterica mesofila
Numerazione lattococchi
Numerazione lattobacilli
Determinazione dell' a_w
Determinazione del ph

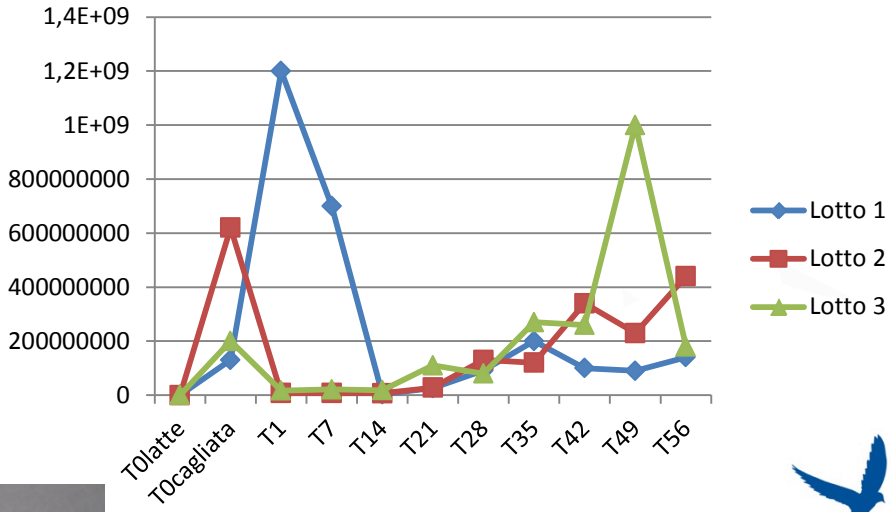
$$a_w = \frac{P_w}{P_w^0}$$

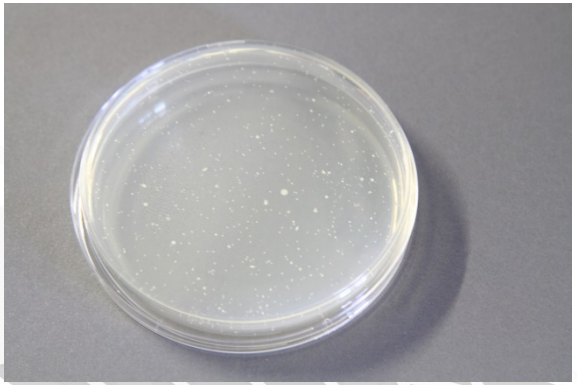


CBT
Caseificio 1

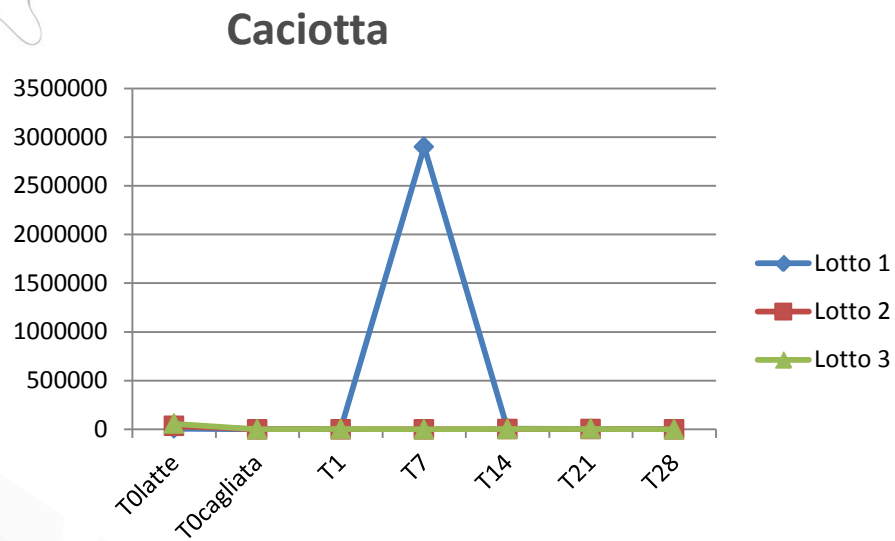


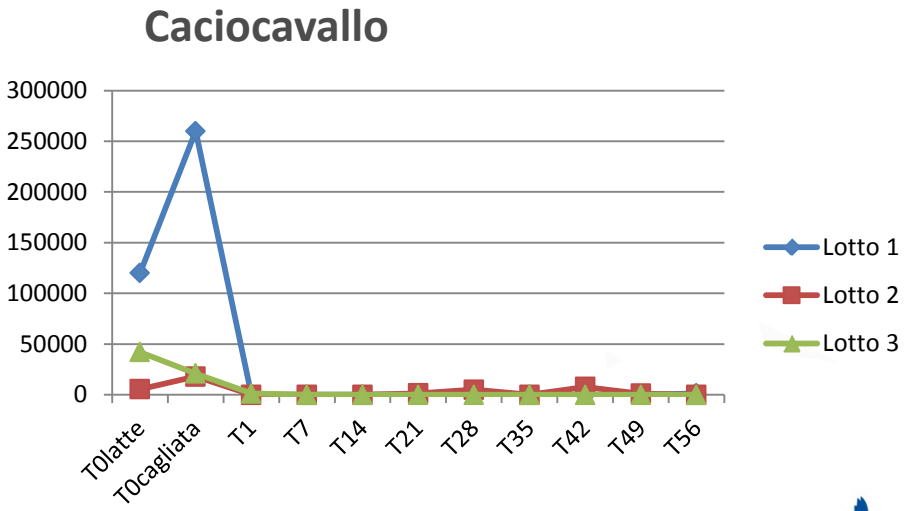




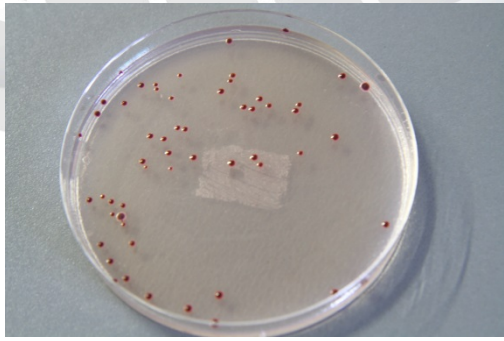


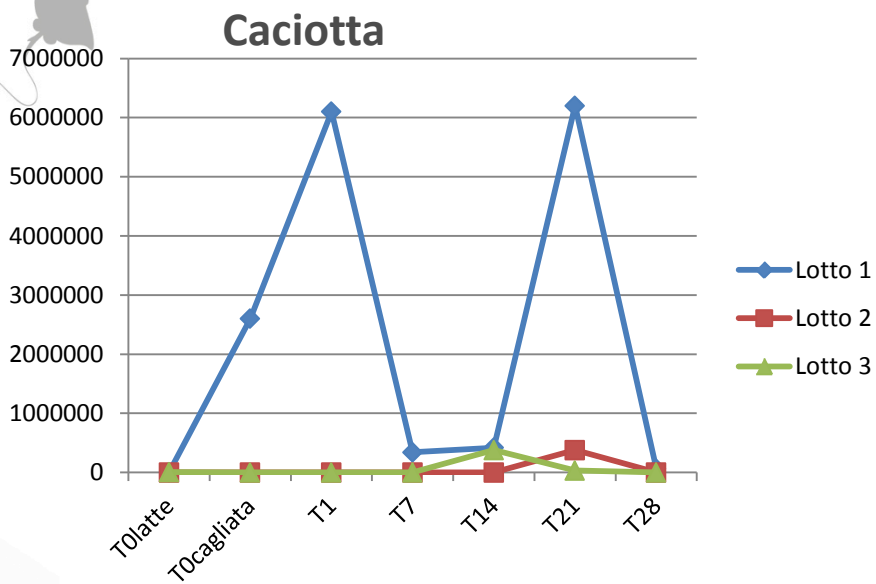
Numerazione muffe e lieviti
Caseificio 1

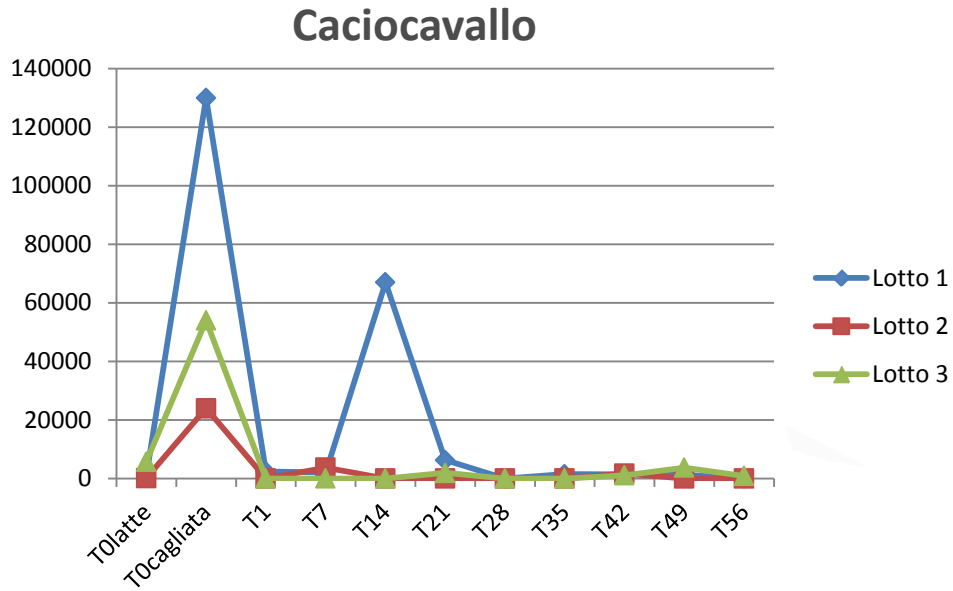


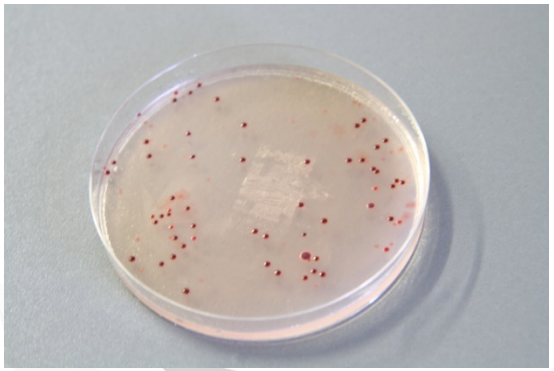


Numerazione enterococchi
Caseificio 1

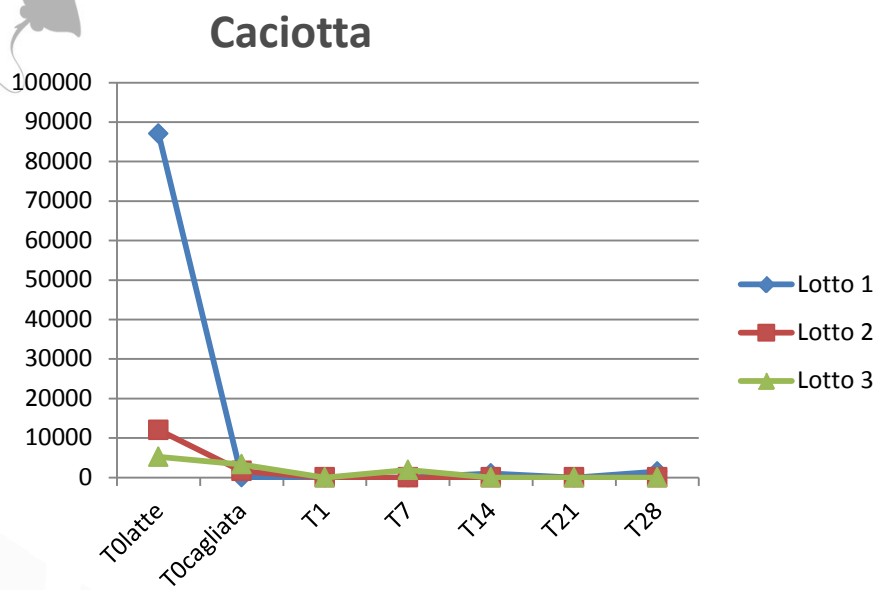


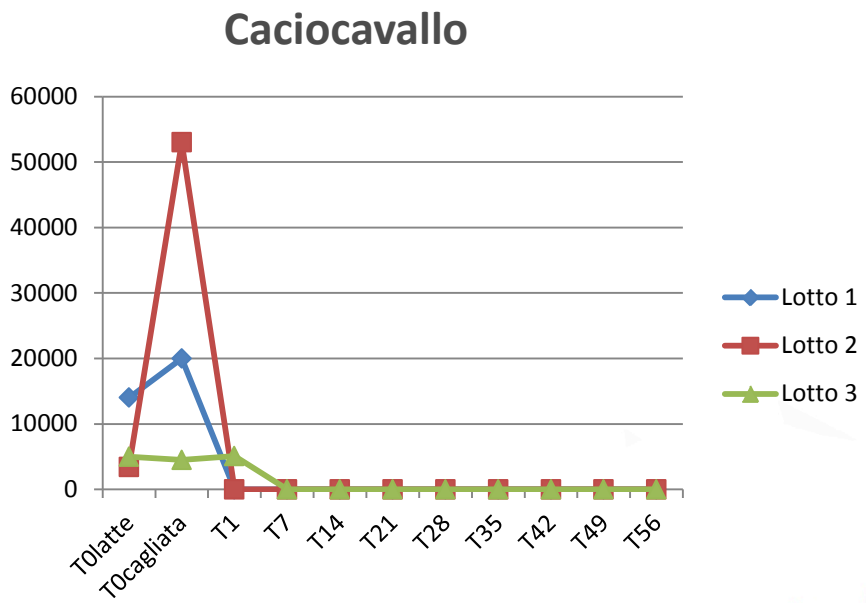


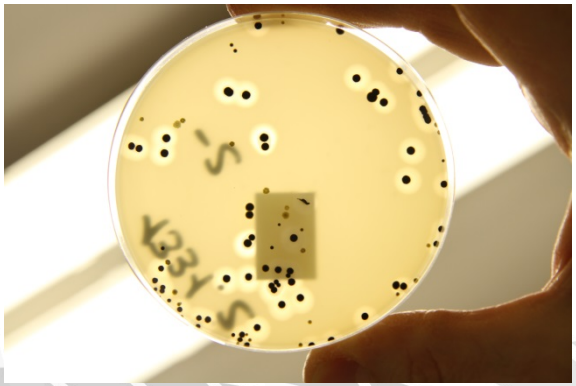




Numerazione Micrococchi
Caseificio 1







Numerazione Enterobatteri
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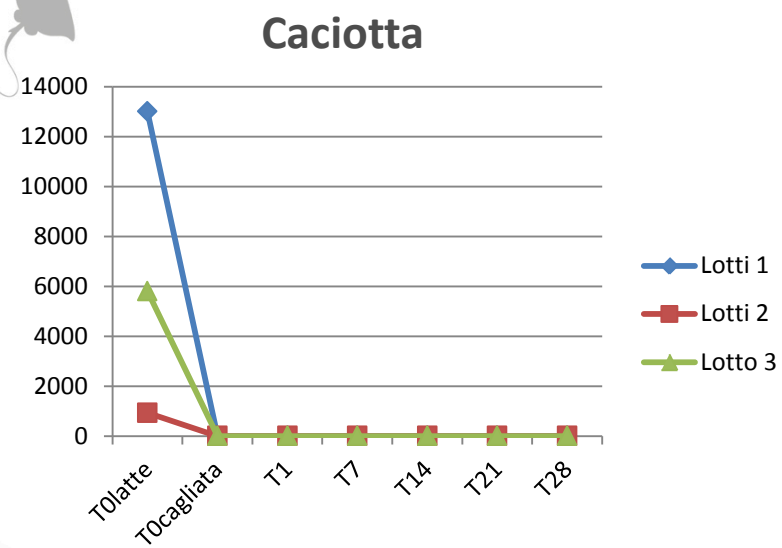
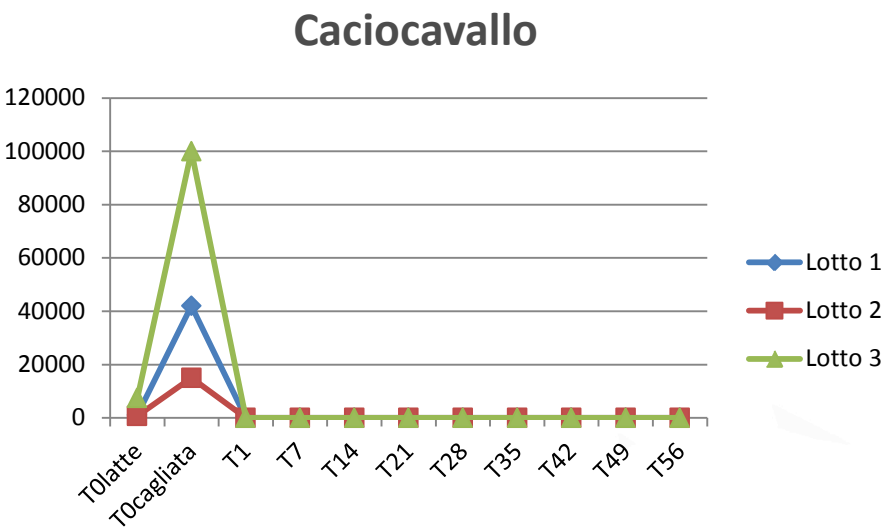
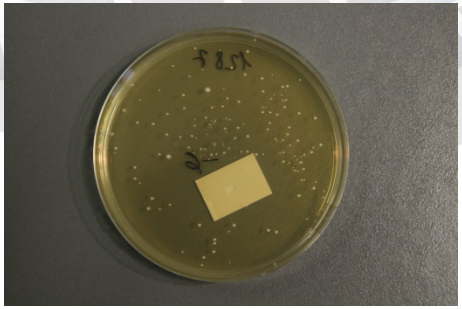
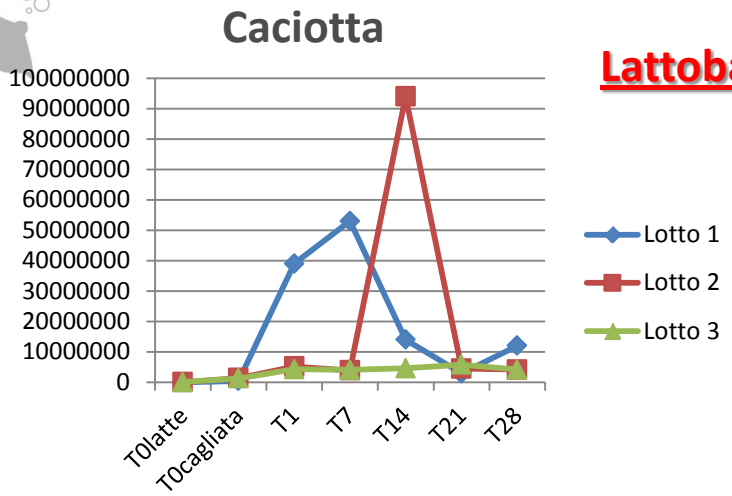


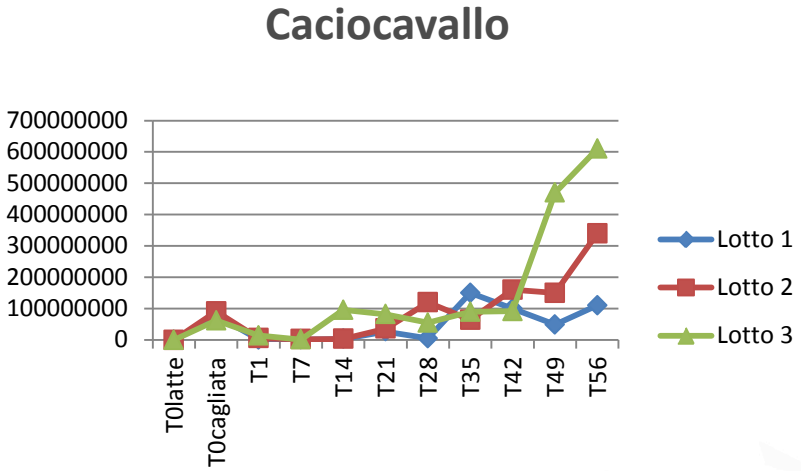


Numerazione lattococchi / lattobacilli
Caseificio 1

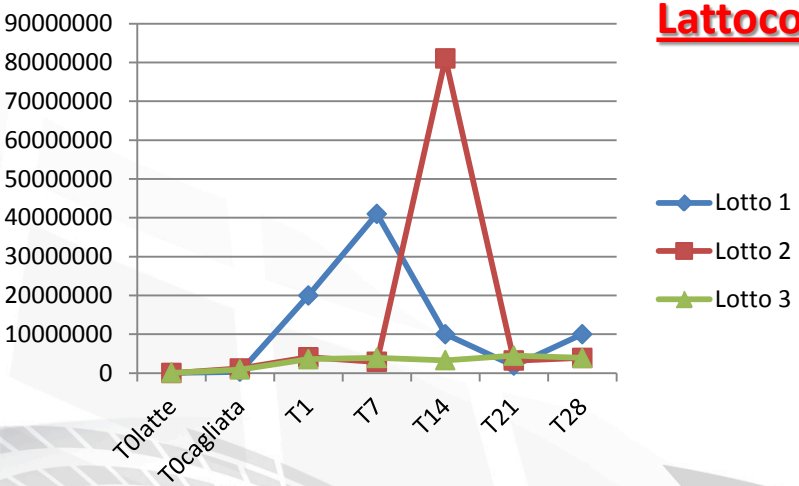


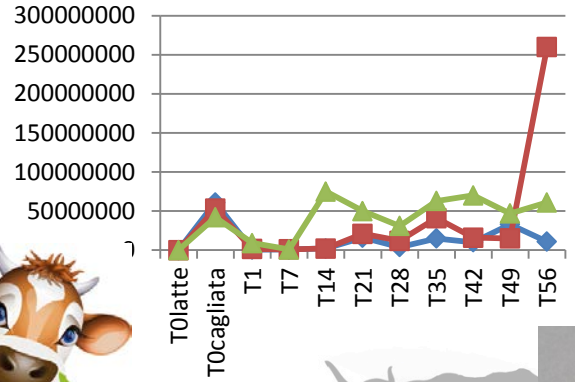
Lattobacilli



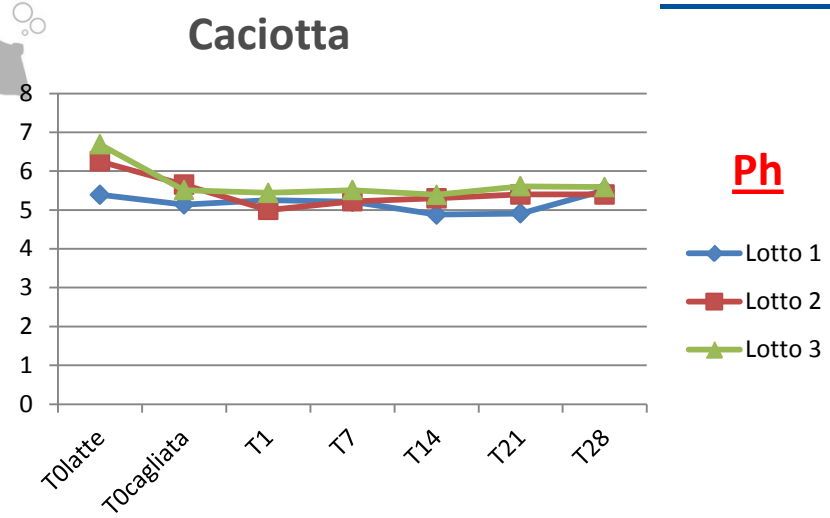


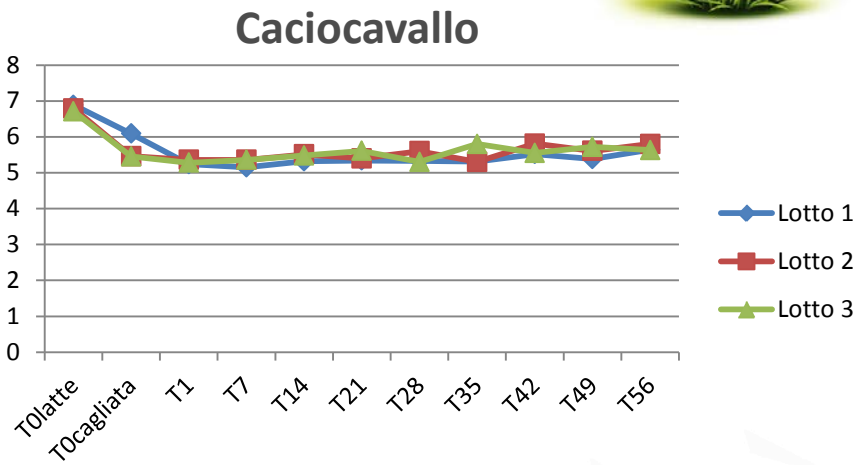
Lattococchi

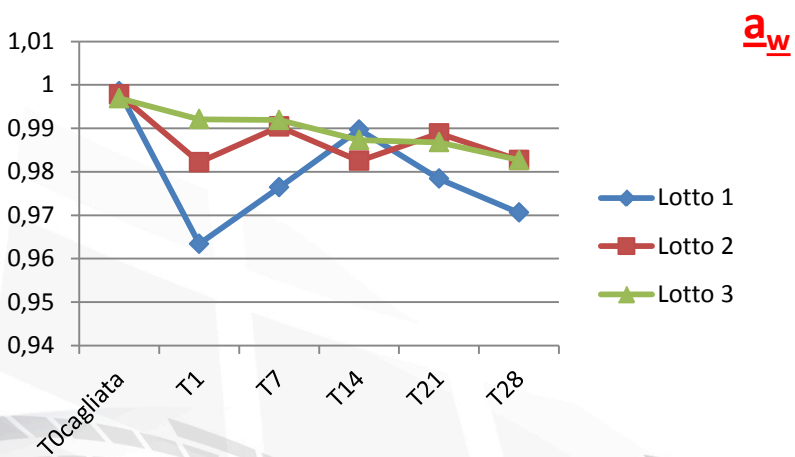


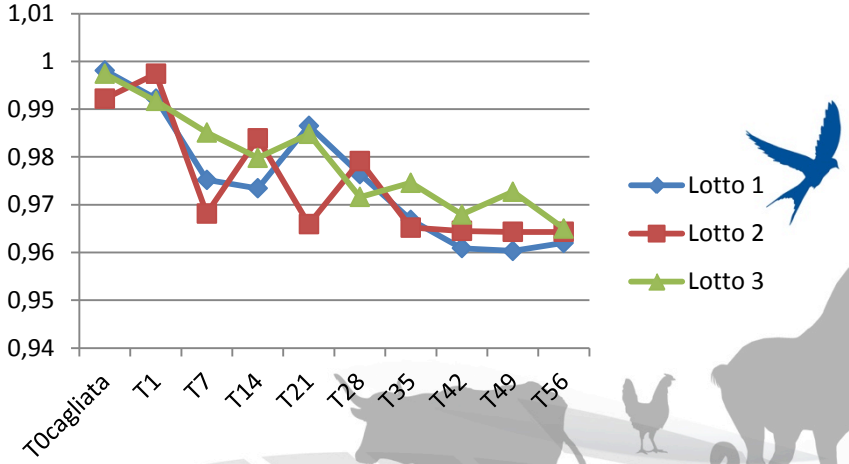


PH e a_w
Caseificio 1

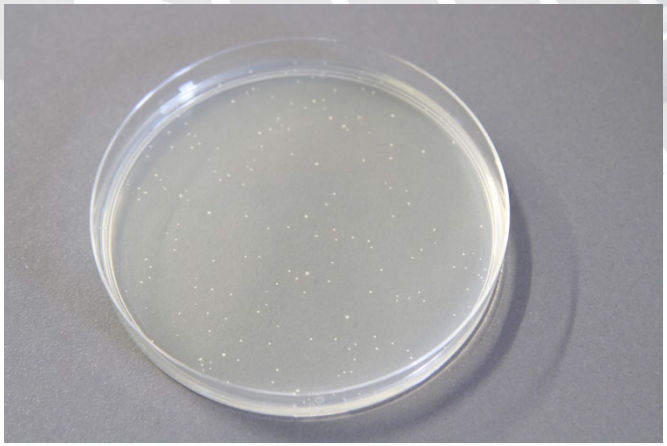


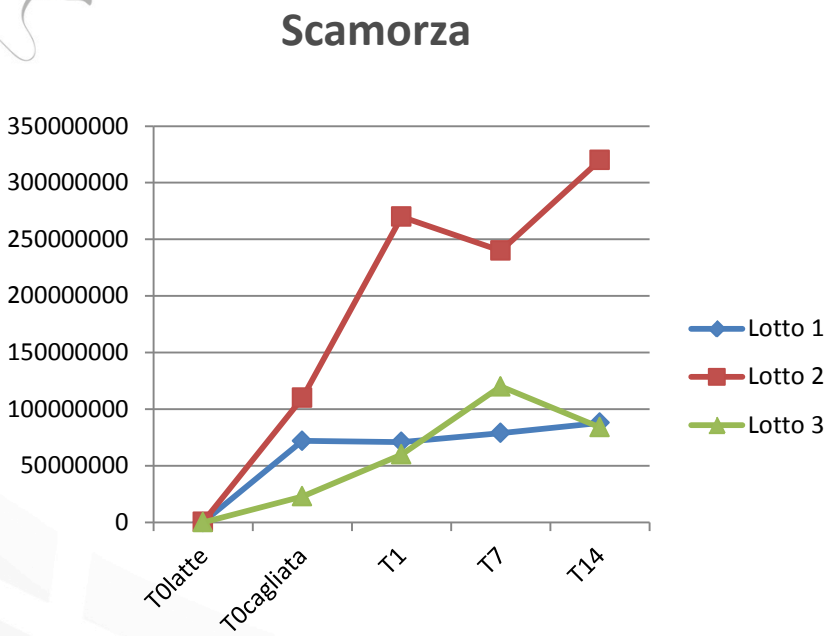


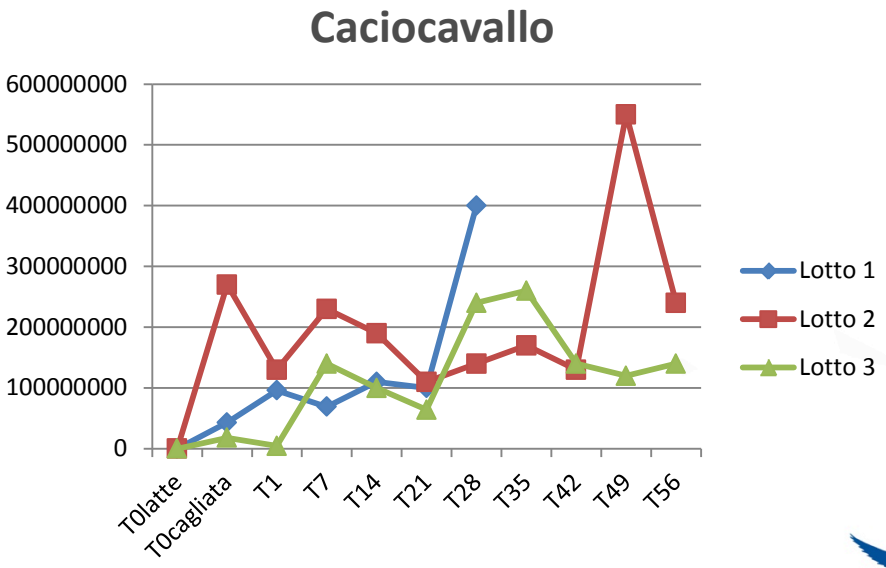




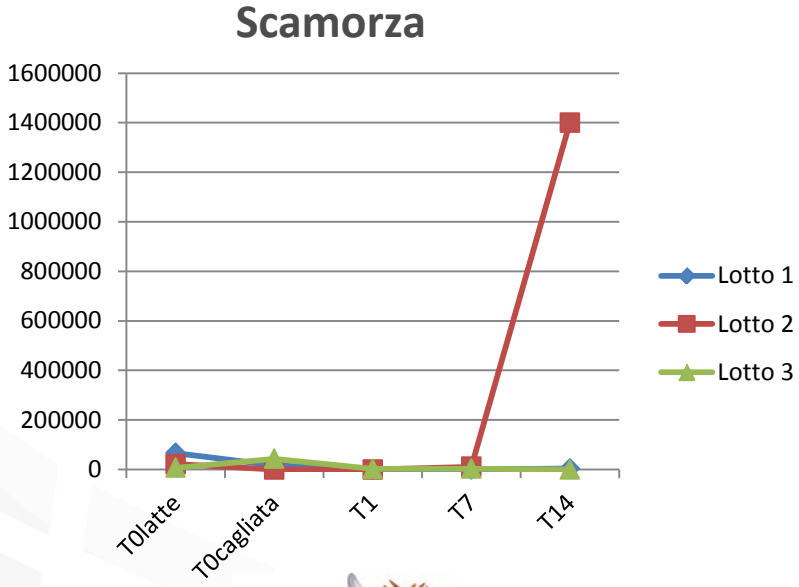
CBT
Caseificio 2

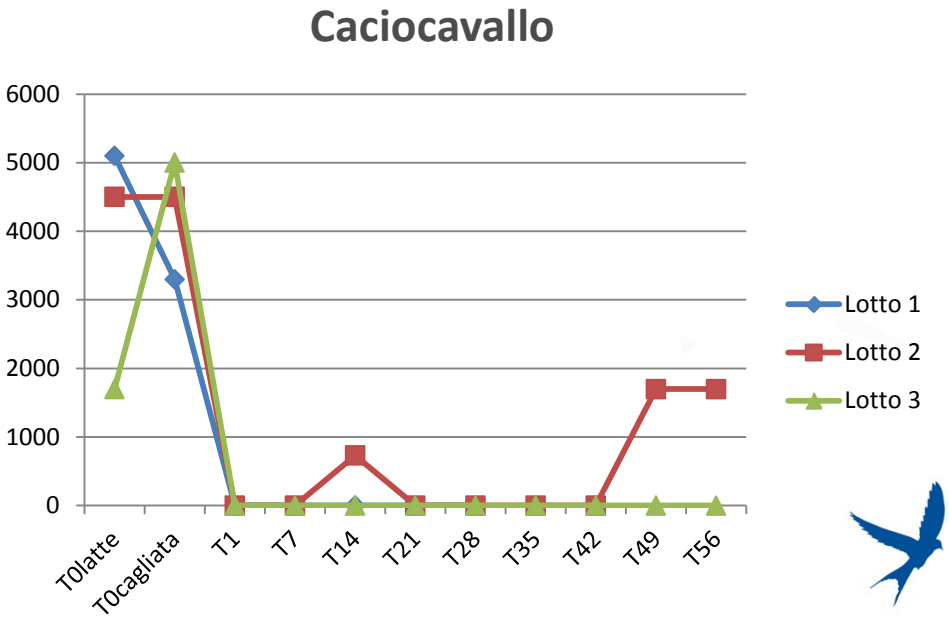




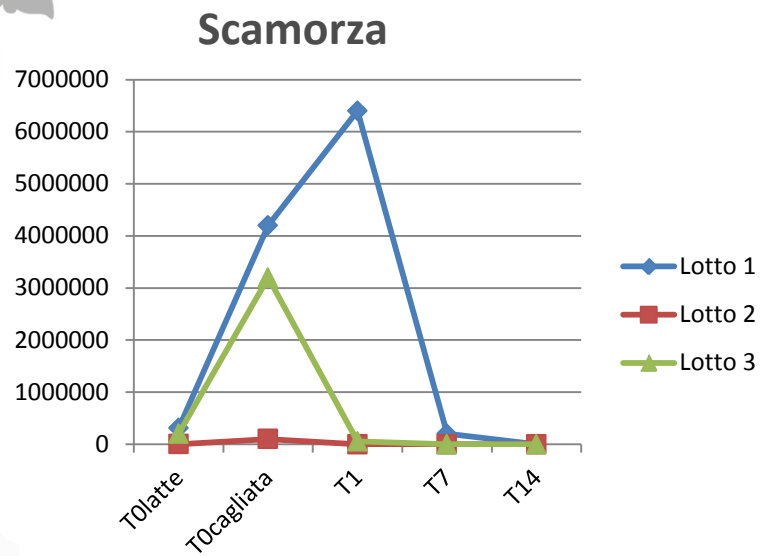


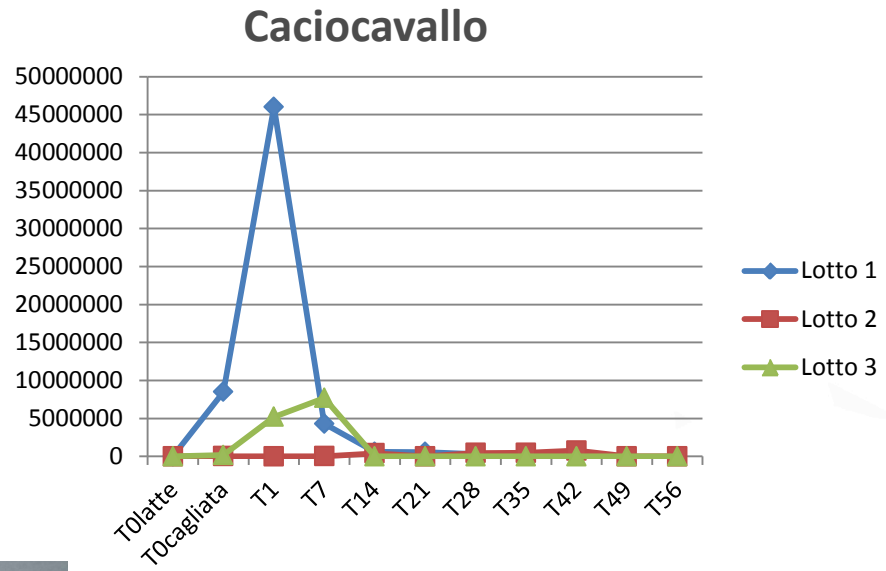
Numerazione muffe e lieviti
Caseificio 2

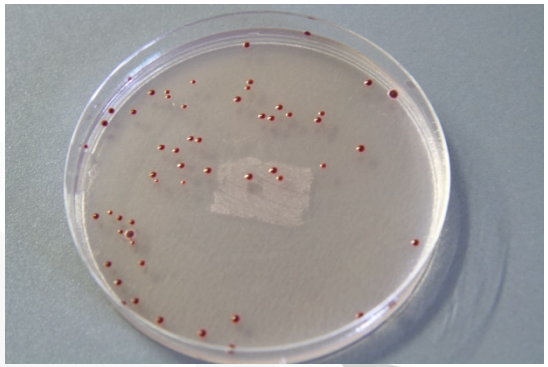




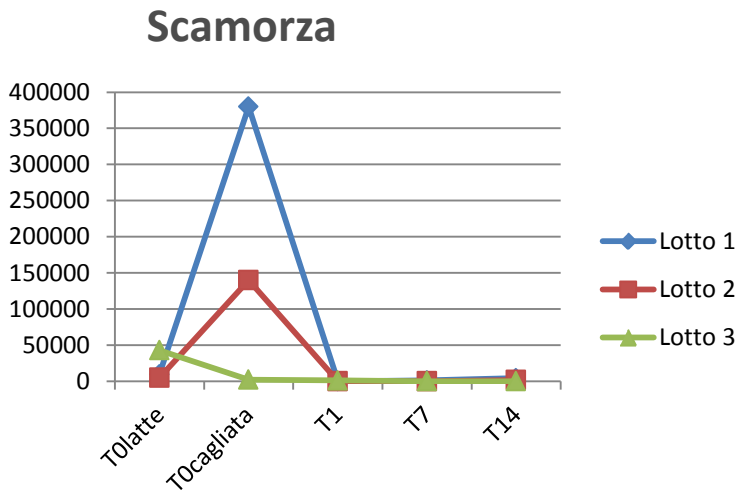
Numerazione enterococchi
Caseificio 2

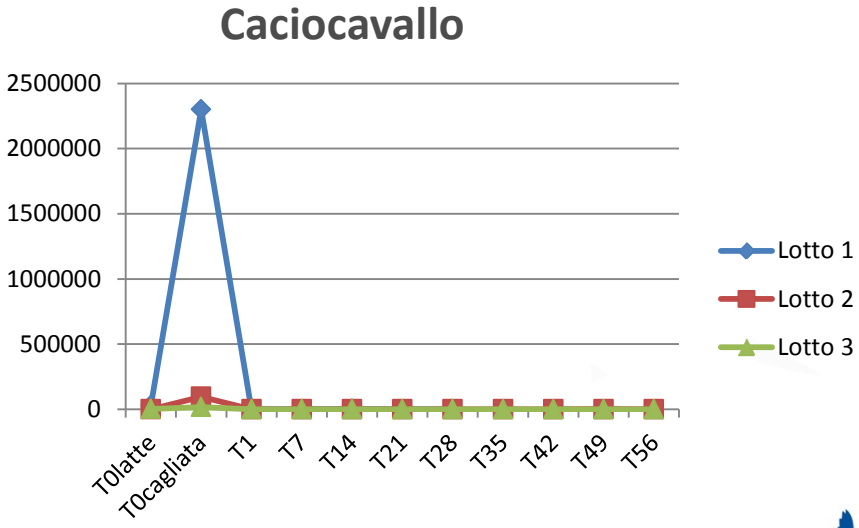


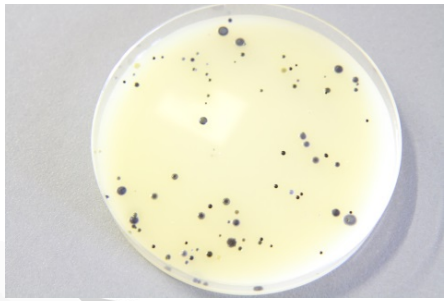




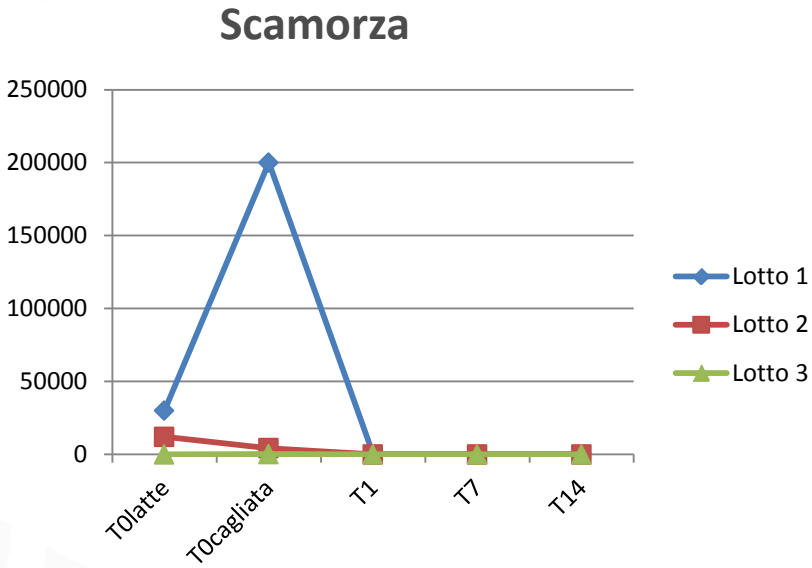
Numerazione micrococchi
Caseificio 2

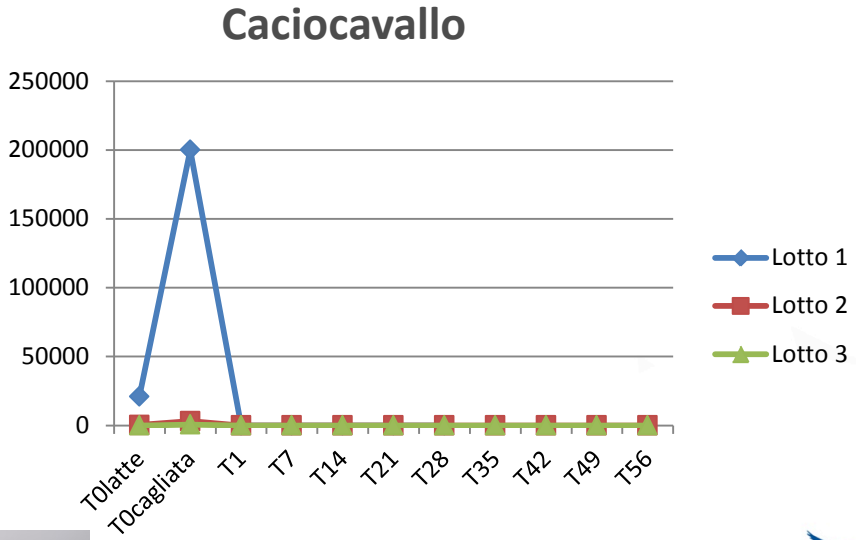


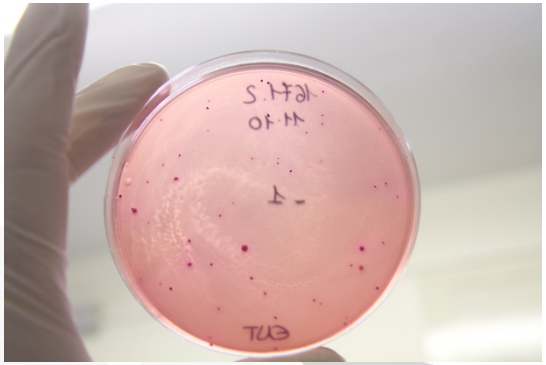




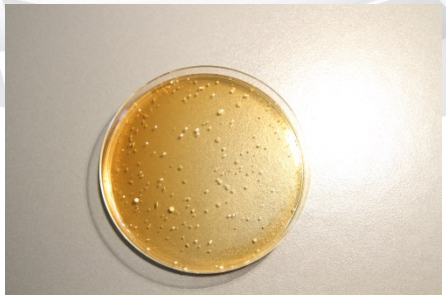
Numerazione enterobatteri
Caseificio 2



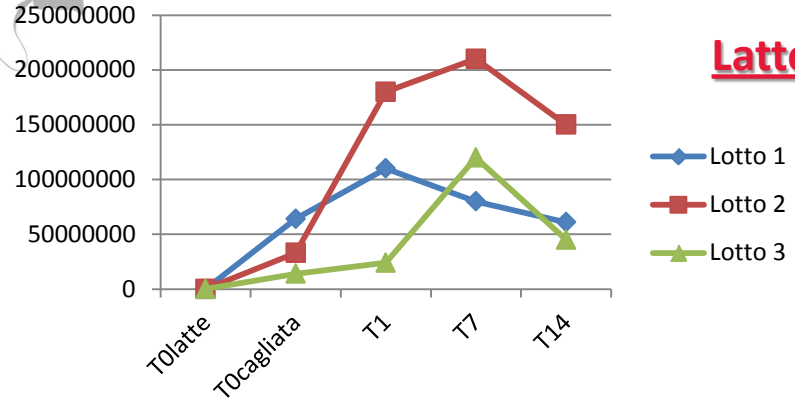




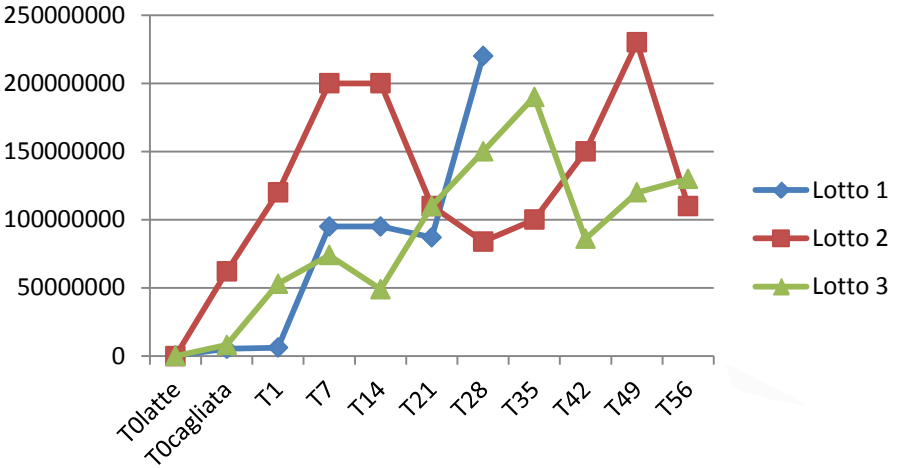
Numerazione lattococchi / lattobacilli
Caseificio 2



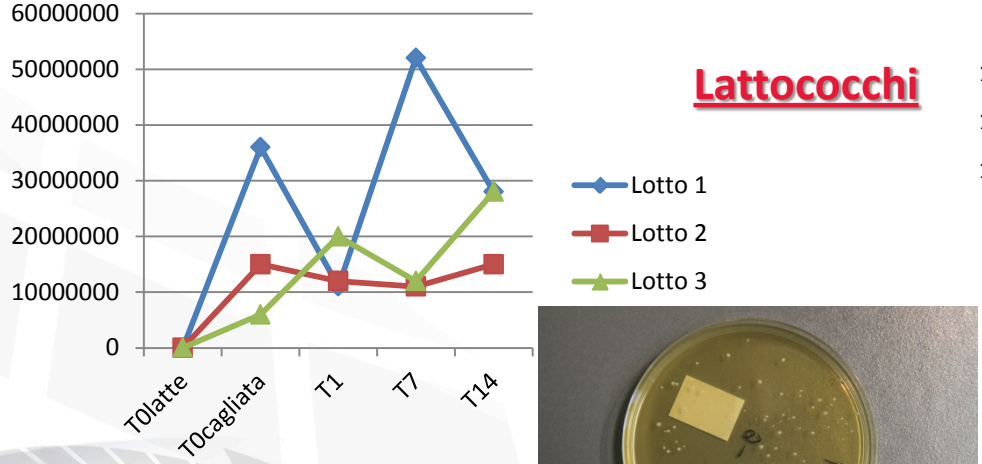
Scamorza

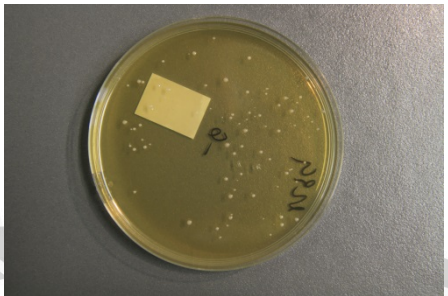


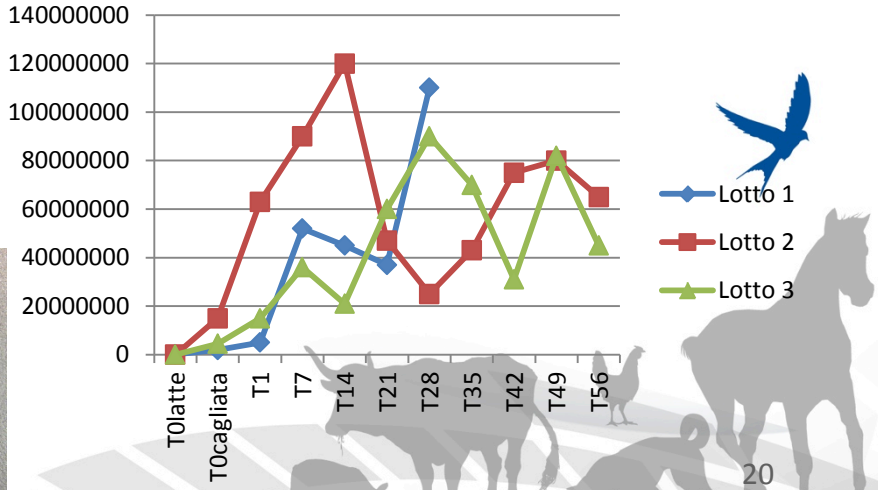
Lattobacilli



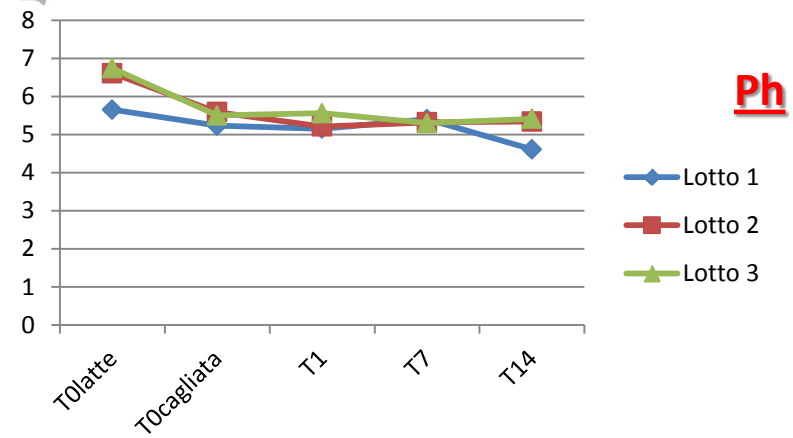
Lattococchi

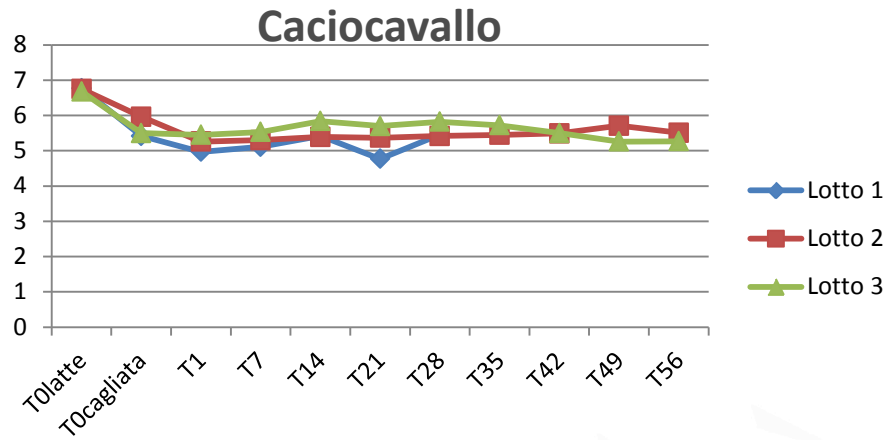


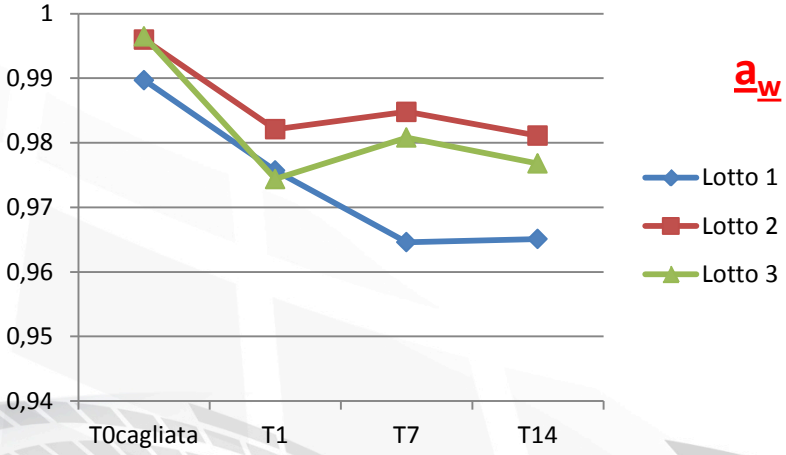


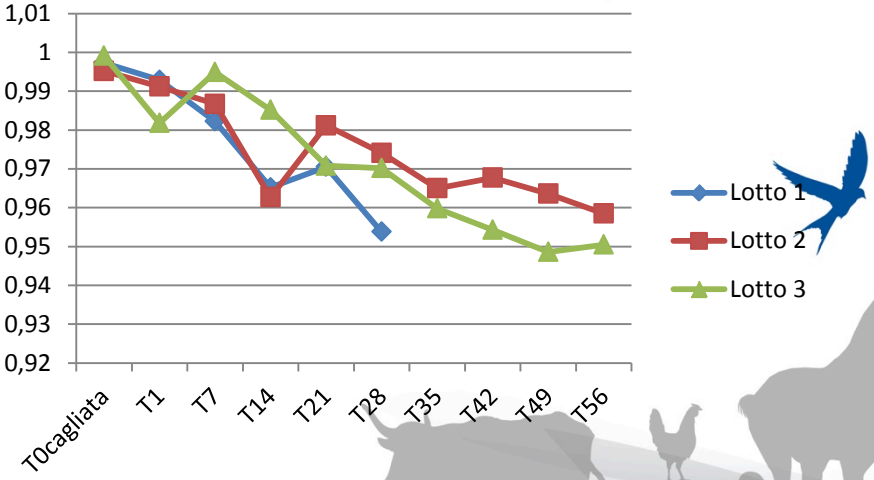


PH e a_w
Caseificio 2

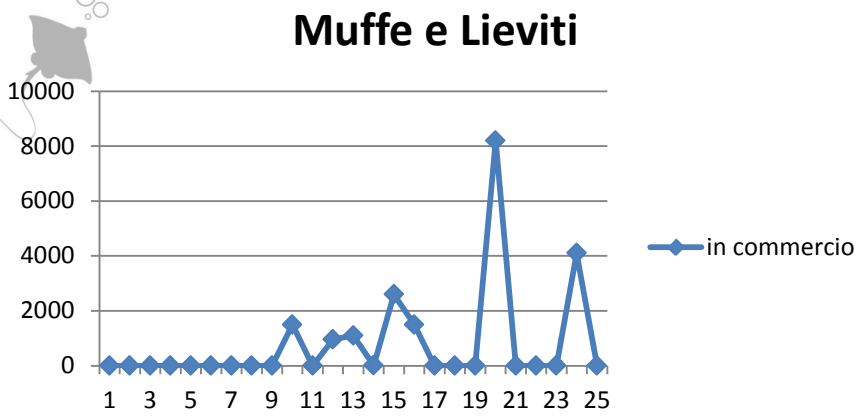


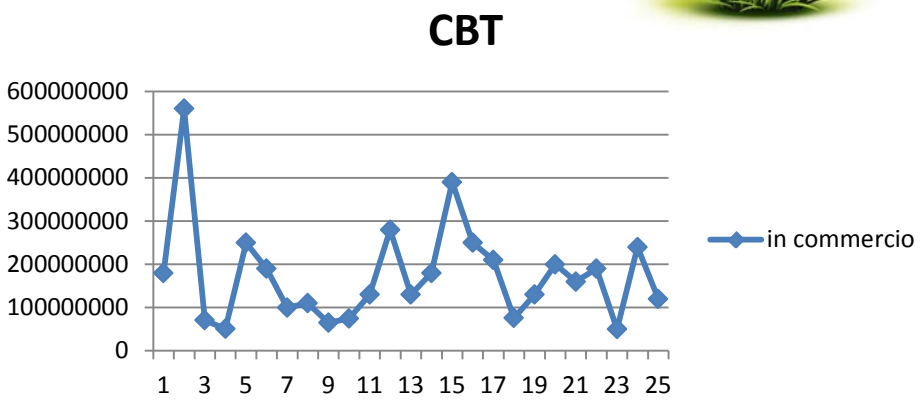


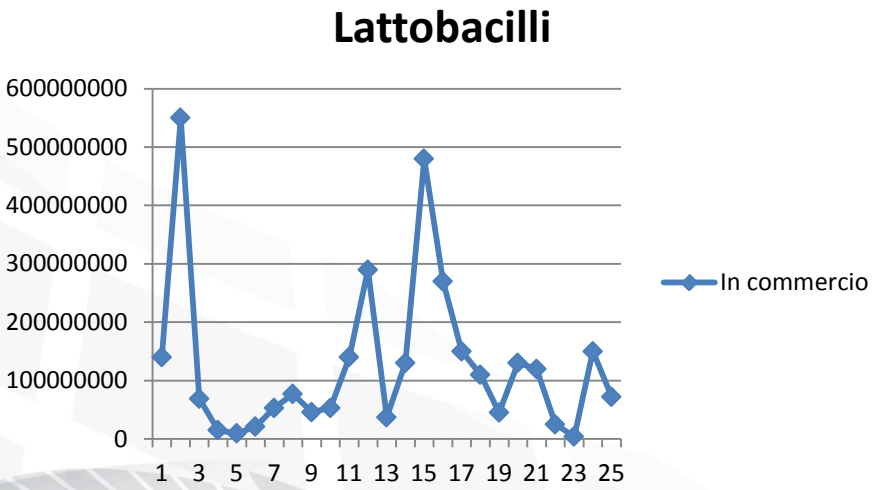


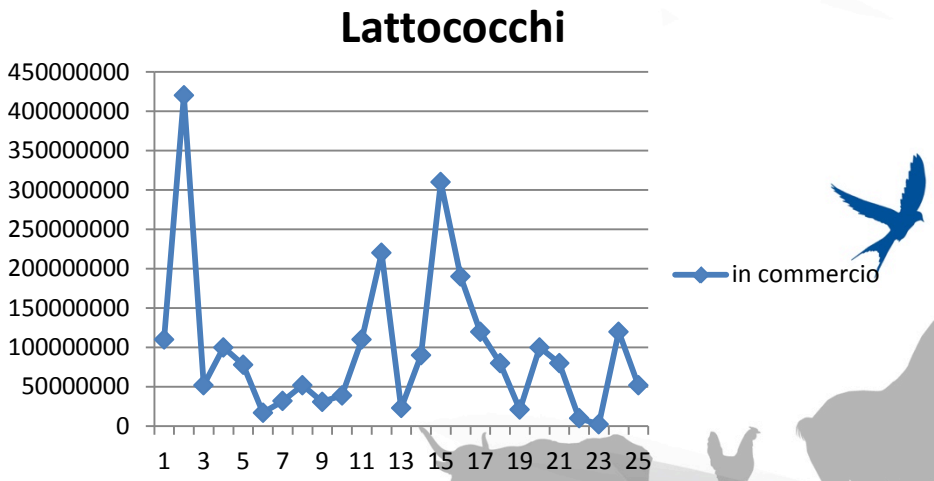


Lotti caciocavallo in commercio
Caseificio 1

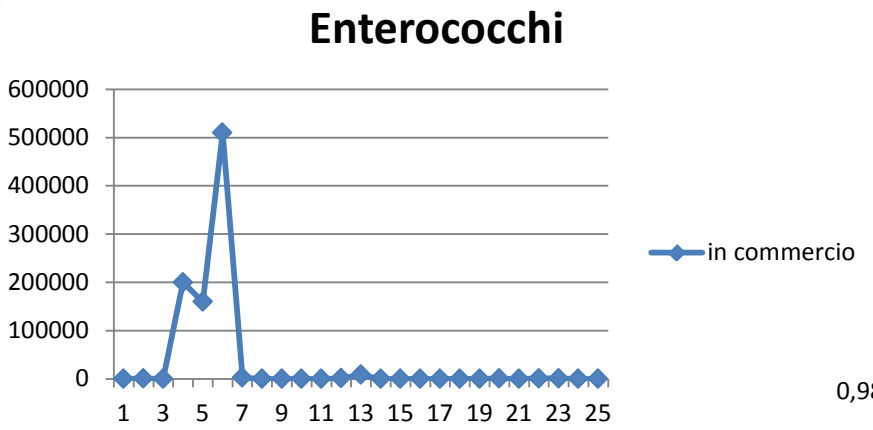






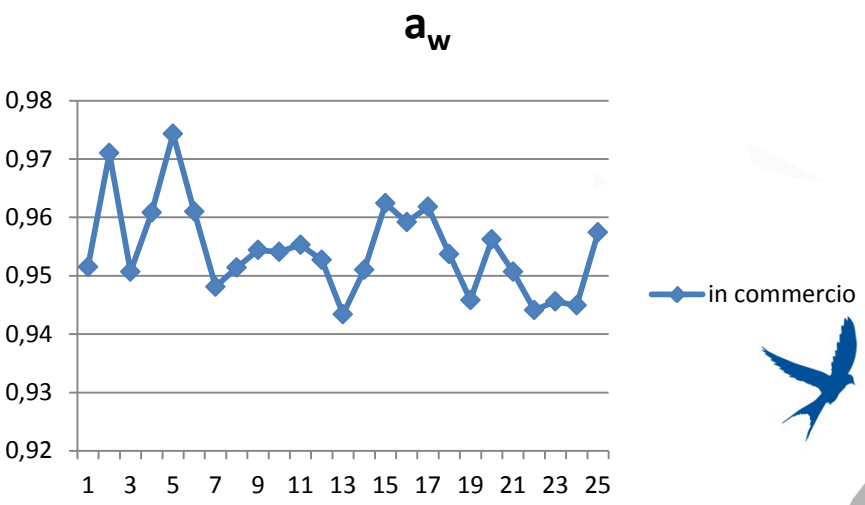


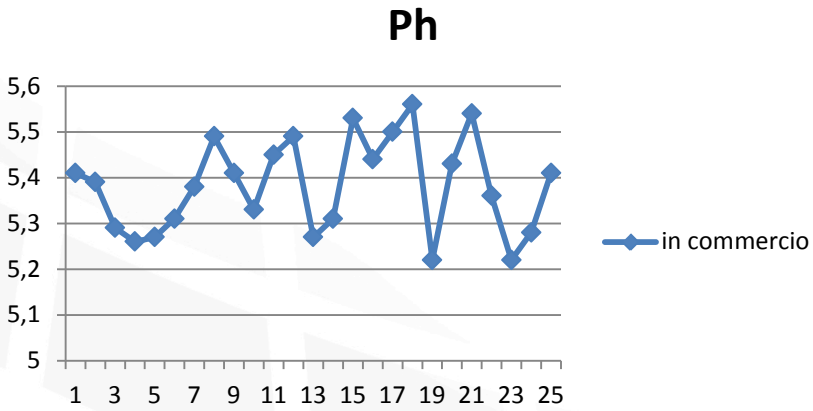
Lotti caciocavallo in commercio
Caseificio 1



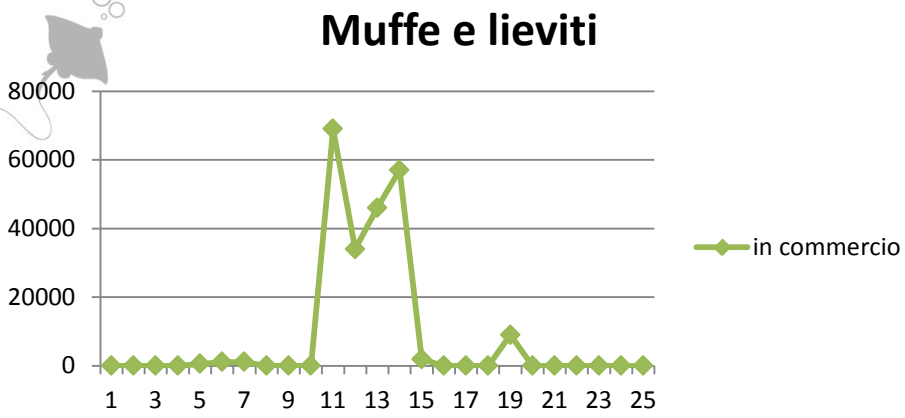
Micrococchi <10 ufc/g

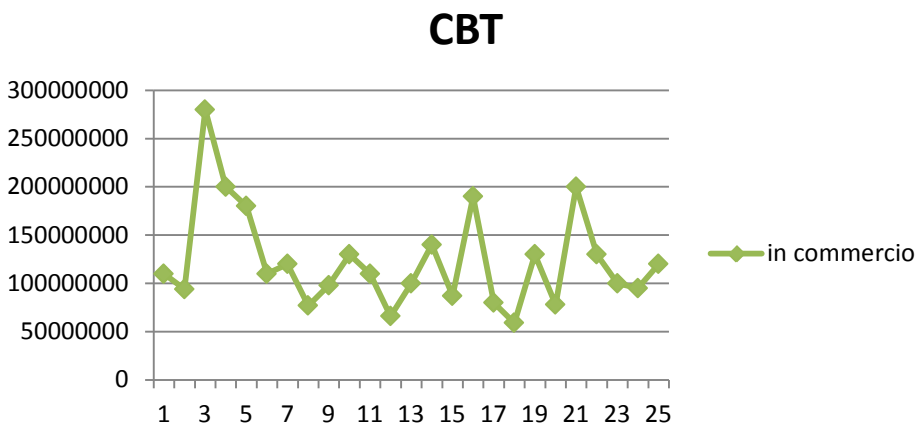
Enterobatteri <10 ufc/g

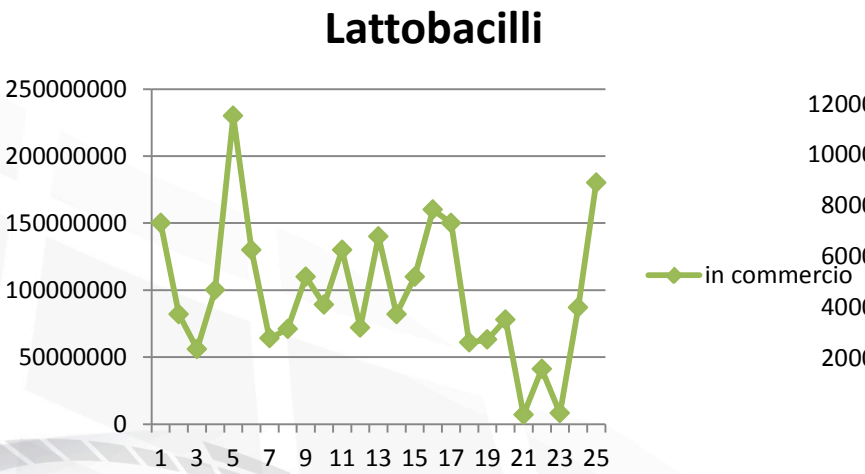


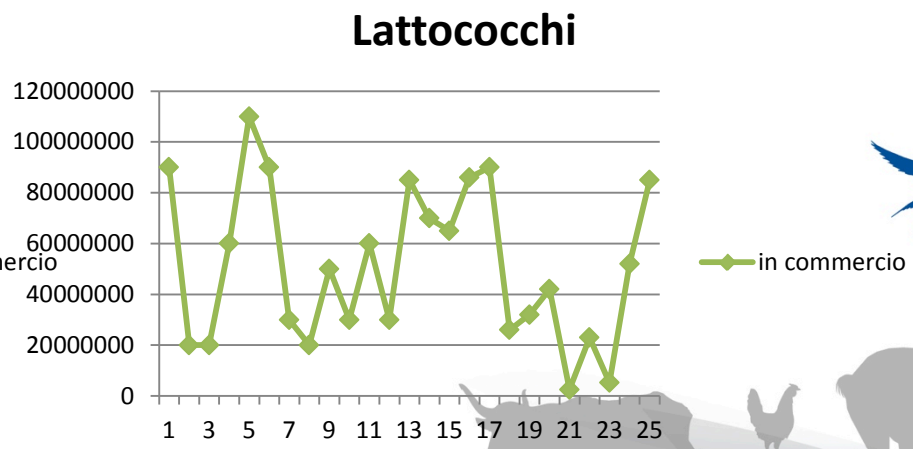


Lotti caciocavallo in commercio
Caseificio 2



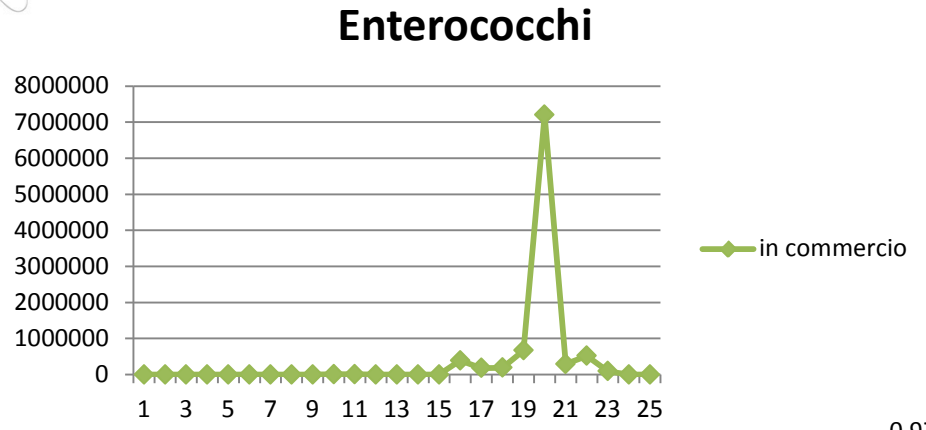


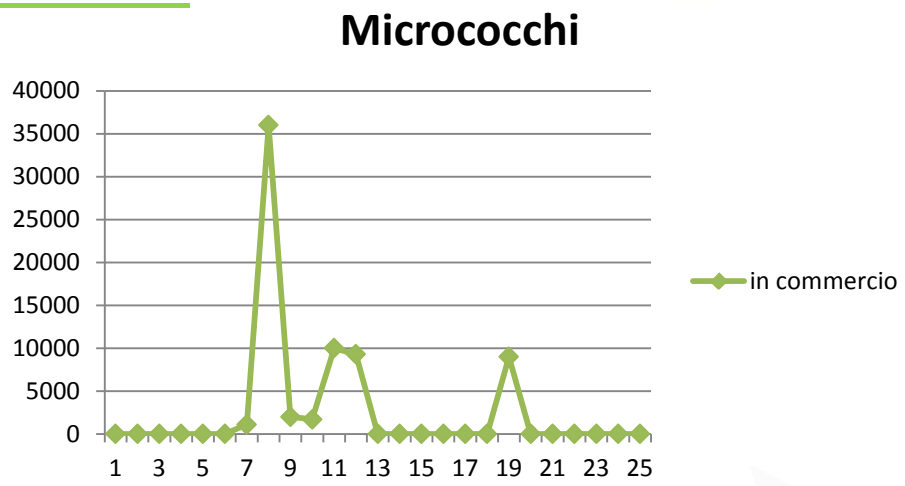


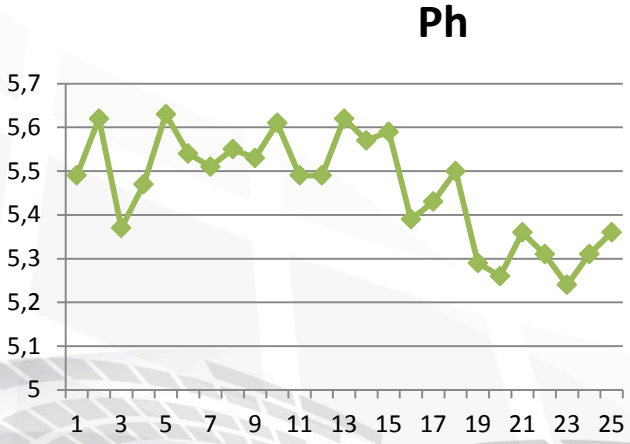


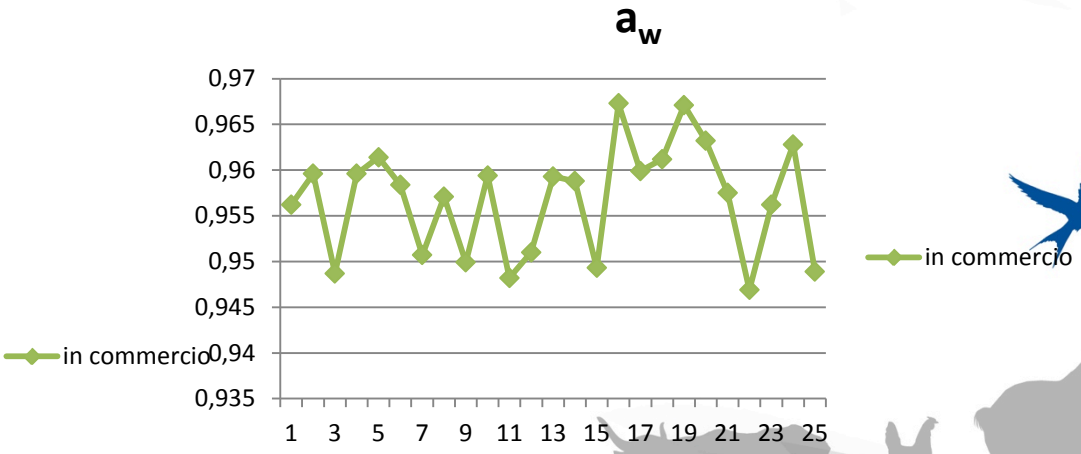
Lotti caciocavallo in commercio
Caseificio 2

Enterobatteri <10 ufc/g

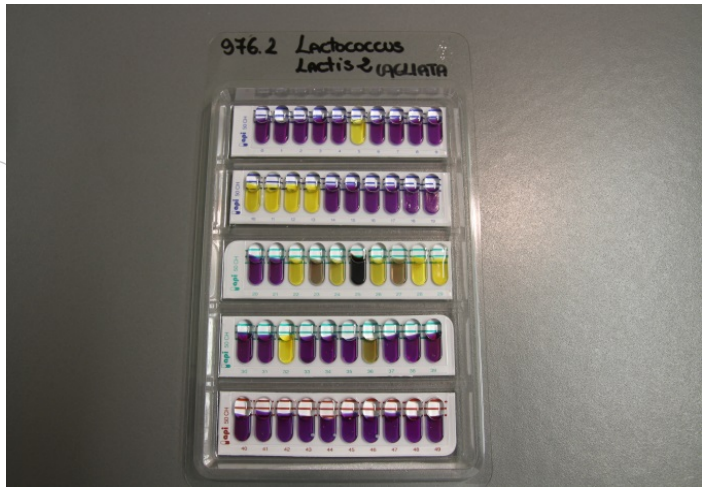








Identificazione



Matrice	Identificazione di specie
Caciocavallo	*Lactobacillus paracasei* *Lactobacillus casei* *Streptoccoccus thermophilus* *Pediococcus pentosaceus* *Enterococcus faecalis* *Micrococcus Luteus* *Staphylococcus cohnii subs.Cohnii*
Caciotta	*Lactobacillus paracasei* *Lactococcus lactis subs.Lactis* *Streptoccoccus thermophilus* *Enterococcus faecalis* *Rothia dentocariosa*
Scamorza	*Streptoccoccus thermophilus* *Lactococcus lactis subs.Lactis* *Micrococcus Luteus*

Risultati

Caseificio 1

- I prodotti selezionati nel caseificio 1 hanno mostrato **completo abbattimento** degli **enterobatteri**, dei **micrococchi** e delle **muffe e lieviti** nel corso della stagionatura.
- I **lattobacilli** ed i **lattococchi** hanno mostrato tra di loro un andamento quasi speculare all'interno del prodotto stesso , ma decisamente non correlato tra i due prodotti, il caciocavallo ha mostrato infatti una concentrazione di batteri lattici maggiore della caciotta.
- Non vi è **alcuna correlazione** tra gli andamenti della **carica batterica** nei due prodotti e la stessa risulta maggiore nella caciotta.
- Gli **enterococchi** hanno prodotto due picchi in entrambi i prodotti per poi estinguersi nel corso della stagionatura.
- Il **pH** non mostra segni di variabilità marcata mentre **l'a_w** diminuisce in funzione della stagionatura.

Conclusioni

- La differente tecnologia di produzione influenza in maniera marcata l'andamento della presenza della flora autoctona, tale aspetto non è riscontrabile nei prodotti che differiscono per forma e tempi di stagionatura diversi ma non per tecnologia di produzione.

- La peculiarità del prodotto è da ascriversi alla presenza massiva e persistente della flora lattica che si suppone possa conferire allo stesso caratteristiche di **protezione** e di **probiosi** verificabili in altri studi.

- La forte dinamicità della flora lattica autoctona evidenziata sia nel corso della produzione che nei lotti posti in commercio crea un optimum del substrato anche per l'esecuzione dei **challenge test.**

IZSAM G.CAPORALE
TERAMO

Grazie per l'attenzione