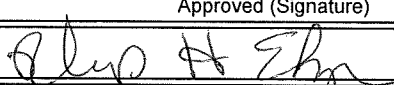


Animal

U.S. Department of Agriculture Accomplishments Report AD-421 U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions			Date (Month, Day, Year) 03/22/2012
1. Accession 0223816	Agency Identification No. 2. NIFA 3. LA.B	5. Work Unit/Project No. LAB94062	6. Status Annual Report
7. Title Improving Fluid Milk Shelf Life Through Improved Milk Quality Determination			
12. Investigator Name(s) (Last Name and Initials) Boeneke, C. A.; Aryana, K. J.			
20. Termination Date 09/30/2015		40. Period Covered (mo/da/year): 01/01/2011 TO 12/31/2011	
Outputs: A thorough literature search was conducted to find information on the advancement of shelf life in fluid milk. A preliminary study was conducted in order to determine which testing methodology was appropriate for determination of shelf life quality in milk. This information has been shared with fellow dairy scientists and students.			
Outcomes/Impacts: In this preliminary study, whole and two percent milks were obtained in duplicate from local grocery stores. The samples were processed at eight dairy processing plants located in different regions of the U. S. Four of the milks obtained were UP (Ultra Pasteurized). Six were from organic certified dairies. Six were from plants using conventional HTST processing of non-organic milk. One set of milk samples was evaluated immediately upon arrival (Week 0). The duplicate set was evaluated at the end of 2 weeks (Week 2) storage time at 7 degrees C. The entire experiment was repeated three times. Milk samples were initially evaluated for sediment, freezing point, lab pasteurization counts(LPC), coliform counts, and standard plate counts(SPC). Although most of the coliform counts were 0 colony forming units(CFU)/mL, mean values for two samples were 7 and 5 CFU/mL upon arrival. Presence of coliform bacteria is indicative of poor post-pasteurization cleaning and sanitizing practices. After 2 weeks of storage, mean coliform counts ranged from 0 to 1600 CFU/mL. Mean SPC values ranged from 0 to 5.5 X 10 ⁵ CFU/mL at week one and from 0 to over 6.8 X 10 ⁸ at week 2. At Week 0, mean values for 4 out of the 16 samples had bacterial counts over 20,000 CFU/mL. At the end of Week 2, 12 out of 16 samples had counts over 20,000 CFU/mL. High SPC numbers can be indicative of improper cleaning or sanitizing. UP milks had the lowest SPC numbers at the end of the 2 weeks. Organic milks that were HTST pasteurized had the next lowest numbers followed by conventionally pasteurized non-organic milks. The four UP products had 0 LPC/mL for each replication of whole and 2% milks. Organic milks ranged from 3 to 13 LPC/mL. Conventionally pasteurized, non organic milks had the highest mean values ranging from 7 to 77 LPC/mL. In the US, no governmental limit exists on the LPC count.			
Publications: No Publications Reported			
Participants: C.A. Boeneke (PI), and K.J. Aryana, LSU AgCenter.			
Target Audiences: Nothing significant to report during this reporting period.			
Project Modifications: Nothing significant to report during this reporting period.			
Approved (Signature)		Title	Date
			3-23-12