Technews

National Dairy Development Board

For Efficient Dairy Plant Operation

March-April 2006 **No.61**

PEST MANAGEMENT IN DAIRY ESTABLISHMENTS

This bulletin includes technical information based on latest developments on products, systems, techniques etc. reported in journals, companies' leaflets and books and based on studies and experience. The technical information in different issues is on different areas of plant operation. It is hoped that the information contained herein will be useful to readers.

The theme of information in this issue is **Pest Management in Dairy Establishments**. It may be understood that the information given here is by no means complete.

In this issue:

1. INTRODUCTION

Dairy establishments like any other food processing and storage facility could be plagued by presence of pests, such as insects, rodents and birds. The damage inflicted by these pests, if not managed effectively, is enormous. Product damage and loss, damage to buildings and equipment, spread of diseases, making premises dirty, consumer complaints etc. are some of the negative impacts of pest infestation in dairy establishments and dairy products.

The maintenance of a sanitary food environment free of insects, rodents, birds, and other contamination sources is, therefore, a responsibility of the dairy industry. For an effective programme against pests, it is necessary to have a basic understanding of the characteristics of these pests and a comprehensive knowledge of safe and effective extermination and control procedures.

This issue of ***Technews*** summarizes information about main pests, encountered in dairy establishments.

2. TYPES OF PESTS

1. Insect Infestation

Insect control in food establishments is of vital significance in the production of clean and wholesome products. The occurrence of insect or insect parts in food products could lead to product seizure and destruction, and initiation of legal proceedings against the product manufacturing unit. Insects that generally infest dairy plants are listed in Table 1.

Table 1: Pest infestation in dairy premises[1]

Insect	Infestation sites	Undesirable effects
Cockroach	Damp places, boiler rooms, washrooms, lunchrooms, inside of equipments (packing machines etc.)	Destroys foodstuffs, labels, cartons and packaged goods, and carries filth.
Housefly	Reception dock, waste handling areas, crate and can washing areas, other untidy areas.	Carries diseases and contaminates products.
Carpet beetle	Cracks in floors, dried milk.	Perforates packages, letting other insects in.
Confused flour beetle	Product storage areas, dried milks.	Damages products.
Flour mite	Cheese factories	Contaminates products.
Almond moth	Chocolate factories	Destroys chocolate nut products and dried fruits.
Cheese skipper	Cheese factories	Attacks and damages cheeses.

There are three basic categories of insect infestation:

1.1 Crawling insects: Cockroaches, silverfish, firebrats etc. characterize this type of infestation. Cockroaches are one of the most common pests among food processing plants.

Cockroaches are more active in dark areas and at night where there are fewer disturbances from human activities. These pests lay eggs in a dark, warm, hard to clean areas. Cockroaches become inactive at approximately 5°C and, therefore, do not pose a problem in refrigerated storage areas[2].

Cockroaches will feed on most foodstuffs, human waste, decaying material, dead insects, other cockroaches, shoe linings, and paper and wood materials. They will sip milk and nibble at cheese, chocolate etc.[1]

Cockroach is the most problematic insect pest for dairy industry as it is a prolific breeder. These pests multiply rapidly by monthly production of small egg cases that may contain 15-40 eggs[2]. The egg case is deposited in hiding place for protection.

These pests carry and spread various disease microorganisms. Many carry approximately 50 different pathogenic microorganisms, eggs of various pathogenic worms, and 4 strains of poliomyelitis virus[1, 2]. Diseases spread by cockroaches include: urinary tract infections, intestinal infections, infections of genitals, enteric fever, gastroenteritis, food poisoning, typhoid fever, dysentery, summer diarrhoea in children, bubonic plague, leprosy, lesions, boils, abscesses etc.

1.2 Flying insects: Housefly is the most common of the seasonal insects in food processing plants.

The most likely areas where flies reside are warm locations protected from wind such as electric wires and garbage can rims. Flies multiply even more rapidly than cockroaches. Warm and moist decaying material that is protected from the sunlight provides an ideal environment for fly eggs to hatch with subsequent growth of fly larvae or maggots.

Houseflies are more abundant in the late summer and fall since the population builds rapidly during the warm weather. Flies are most active in a 12-35°C environment. Below 6°C they are inactive, and below –5°C death can occur within a few hours. Heat paralysis sets in at approximately 40°C, and death occurs at 49°C[2].

Houseflies are a greater menace to human health than is the cockroach and transmit a variety of pathogenic organisms to food and humans. It has been estimated that one fly can carry over 3.5 million bacteria. Some common diseases transmitted are typhoid, dysentery, infantile diarrhea, and streptococcal and staphylococcal

infections. These transmit diseases primarily because they feed on animal and human wastes. The pathogenic microorganisms are collected on its feet, mouth, wings, and gut when this insect feeds on garbage. These pathogens are subsequently deposited when the fly crawls on food. Since flies have no teeth and must take their food in liquid form, they spit on solid food and let the food dissolve by the action of enzymes present in their spittle before consumption. Fly spittle, or vomitus, is loaded with bacteria which contaminate food, equipment and utensils.

1.3 Stored food insects: These are insects inherent in certain types of stored foods and include beetles, moths etc. These are generally found in dry storage areas and come into the plant or warehouse in the egg form or as microscopic sized larva already present in the food. Rapid insect development occurs within a fairly narrow range of 5-10°C around the optimal temperature which, for most storage insects, is in the range of 30°C.

2. Rodent Infestation

Rodents, such as rats and mice, are among the most significant of all pests of the food and food-warehousing industry. Rodents live in any area that provides shelter, food and water. These are nocturnal creatures and frequent sewers, drains, waste storage areas and any area in the factory where they will not be disturbed. The storage and handling of food makes dairy premises susceptible to rodent infestations.

These pests are known to be able to force their entry through very small openings. They also have the ability to climb vertical brick walls and jump vertically and horizontally. These rodents are strong swimmers and are known for their ability to swim through toilet bowl traps and floor drains.

Rodents are prolific if food is abundant. Weed seeds, nuts, grains, insects, various small mammals, birds and aquatic animals

comprise the natural food for rodents living outside in their natural habitats. Around human dwellings and commercial establishments, rodents become opportunistic foragers, adapting to many different types of foods such as cereal grains, garbage, insects, fruits and vegetables etc.

Rodents have impressive capacities for reproduction. In a single year a typical female rat and a typical female mouse wean on an average 20 and 35 offspring, respectively, per year[(2)].

Rodents are dangerous and destructive. The damage could be from consumption and contamination of food and structural damage to the property, including damage from fires caused by rats gnawing on electrical wires.

These pests are directly or indirectly involved in the transmission of diseases such as bubonic plague, murine typhus, trichinosis, salmonellosis, lymphocytic choriomeningitis, rickettsial pox, rat-bite fever, ringworm etc.[(2)] Salmonella is carried in urine and droppings and is transmitted to humans by the rodents' constant, uncontrolled urination. Several million harmful microorganisms can be found in one rat dropping.

3. Bird Infestation

Most troublesome birds infesting food establishments are pigeons, house sparrow etc. Birds use large buildings as nesting places in the summer and roost in any season. Birds enter high unscreened areas or openings near the roof. They tend to congregate outside the building and wait until there is an opportunity for one or two of them to dart in.

Birds are capable of contaminating large amounts of food and food materials with falling sticks, straw, excreta or feathers. Birds also cause objectionable odours and damage property. Most often, damage from birds is caused by their acidic faeces, which especially when moist, are very corrosive. Such damage may be

inflicted on roofs, air conditioning equipment, insulation, equipment and machinery etc.[3] Bird nests built around electric motors and panels are associated with the risk of fires.

Birds and their faeces are reservoirs of several diseases that could be transmitted to humans. These include bacterial diseases (*paratyphoid, pasteurellosis, salmonellosis, tuberculosis, vibriosis, yersinosis*), fungal diseases (*aspergillosis, candidiasis, cryptococcusis, histoplasmosis*), protozoan diseases (*toxoplasmosis, trichomoniasis*), rickettsial disease (o*rnithosis*), viral diseases (*encephalitis, meningitis*) and parasitic infections. The diseases are transmitted to humans through aerosolized bird faeces, food or soil contaminated with bird faeces, and direct contact with birds or their nesting material[2, 3].

3. DETECTION OF INFESTATION

Cockroaches: One of the easiest method of checking cockroach infestation is to enter a darkened production or storage area and determine if they scurry away after turning on lights. A strong, oily odour which arises from a substance given off by certain glands of this insect can also indicate the presence of cockroaches in a room. Also, cockroaches deposit their faeces almost everywhere they have been. These droppings are small, black or dark brown, and almost spherical in shape.

Rodents: Since rats and mice tend to hide during daylight hours, there presence is not always immediately detected. The presence of their faecal droppings is one of the obvious signs of rodent infestation. If the droppings are black and shiny with a pasty consistency, one or more rodents have recently been in the vicinity. Dried urine of mice fluoresce under ultraviolet light, hence spots suspected to be mouse urine can be inspected with an ultraviolet light.

Rats and mice generally follow same path between their nests and sources of food. Therefore, grease and dirt from their bodies form visible marks on floors and other surfaces. Rat and mouse tracks can be seen on dusty surfaces with light shining from an acute angle. Spreading talc (track powders) in areas of suspected rodent activity can identify rodent tracks.

Presence of rats can also be determined by gnaw marks. Rats gnaw to reach sources of food and to keep their teeth short. The incisor teeth of rats are strong enough that they can gnaw through metal pipes, unhardened concrete, sacks, wood, and corrugated materials. Teeth marks can be observed if gnawings are recent.

Flies: Flies may be seen settling on food or equipment. Fly droppings which look like small black spots may be observed.

Beetles / moths: Presence of flying insects in the facility, live or dead insects or larvae on the floor, traces of insects or larva in dust, webbing and holes in food and packaging materials. Excessive dust, noise from inside the package, strong odour etc. are also indicators of this type of the pest infestation.

Birds: Birds may be seen flying in food warehouses and processing establishments, they may be heard when roosting. Presence of their nests and nesting material, droppings, and feathers inside the premises also indicate bird infestation.

4. CONTROL OF PESTS

Pests are effectively controlled by Integrated Pest Management Practices. Use of sanitary practices and chemical control in combination is effective and economical way of controlling pests. Use of chemical control should follow sanitary practices.

1. Control through General Housekeeping

Thorough housekeeping is effective in ridding the premises of pests. Elimination of pest shelters, rubbish, decaying material,

discarded supplies and equipment is an effective approach to discourage the presence of insects and rodents. Proper maintenance of the civil structures that include closing holes or openings in walls, floors and ceilings, and placing screens over windows and ventilation openings prevent entry of pests into the facility.

Pest problems can be effectively controlled with a programme of cleaning and inspection: a) inspecting and cleaning the storage area regularly (Table 2), and b) closing or removing open food containers, repairing damaged packages, and removing and disposing food unfit for human consumption (Table 3).

Inspection is a preventive, monitoring control measure that is important and cost-effective. This function can identify existing problems and detect potential problems, and can monitor an ongoing sanitation programme.

Table 2: Facility inspection programme

Area to be inspected	**Inspect for**
Outside the establishment	Cleanliness; condition of roof, walls and windows; security--fences, guards, locked doors and windows.
Inside the establishment	Condition and cleanliness of ceilings, floors and walls; adequate ventilation; waste material handling; placement and condition of waste material containers; placement of baits, traps and other pest control equipment.
Food storage area	Distance between stacks, and between stacks and walls; interlaced or bonded stacks; use of pallets free of exposed nails or splinters which may tear bags; segregation of damaged food; stale food stored too long; leaking, stained or discoloured containers, bulging or rusting cans and caking of food within bags.

Table 3: Handling of damaged products

Type of damage	**Evidence of damage**	**Methods of control**	**Action necessary**
Leaking, broken or torn bags or containers	Food spills from containers / bags during handling. Bags are torn and containers are dented or crumpled.	Handle properly--do not throw, stack too high or use hooks Contact supplier for preventive / corrective action.	**Repackage food** fit for human consumption. Inspect sweepings and either **reconstitute** or **dispose** of sweepings declared unfit for human consumption**.**
Wet, stained or mouldy bags or containers	Containers are wet to the touch or dripping. Unusual smell (mouldy or chemical) Caking of food.	Ship in waterproof holds or in adequately sealed cargo containers. Ensure adequate air circulation in storage areas. Do not store past expiration date on container.	Inspect and **repackage or reconstitute food** fit for human consumption; **dispose** of food declared unfit for human consumption.
Bulging or rusted tins	Rust on outside of container, especially near seams and lids. Shape of container is bulging and distorted.	Do not store in direct sunlight Do not store past expiration date on container or longer than four months.	Inspect and **repackage or reconstitute food** fit for human consumption; **dispose** of food declared unfit for human consumption.

Type of damage	Evidence of damage	Methods of control	Action necessary
Sweepings	Loose food from packages or torn bags on warehouse floors Loose food on floors after reconstitution.	Keep bags of food from being handled roughly or moved too many times. Instruct labourers to avoid as much spillage as possible during the reconstitution of food.	Frequently sweep floors to keep them clean. **Reconstitute (or reprocess) all food** that may be fit for human consumption. Determine if sweepings are unfit.

2. Specific Control Methods

Specific control methods largely depend upon the type and variety of pest targeted and include extermination of pests through use of specific chemicals. The care to be exercised in chemical control methods is briefed in a subsequent section.

2.1 Insect Control

i. Fumigation: Fumigation is the use of an insecticide gas (fumigant) to kill insects, including those that are in hiding. Fumigation is restricted to the treatment of storage areas, shipment containers etc. **Due to the extreme toxicity of fumigants, fumigation is seldom used in dairy premises.** For safety precautions fumigation is normally done only when other work operations are ceased. To ensure adequate dispersion, fumigants are often applied with air-moving equipment. Because there is no residual kill, insects may re-contaminate the area immediately after fumigation.

To conduct an effective and safe fumigation, certain conditions must be met, including, but not limited to, the following:

- appropriate temperature
- proper use of tarpaulins and sealing technique
- proper dosage and time exposure
- monitoring for presence of fumigants
- safety precautions
- inspection and follow-up

Chemicals used as fumigants include *ethylene oxide, carbonyl sulfide etc. Ethylene oxide* is most frequently used for stored commodities[(2)].

ii. Insecticide (other than fumigants) sprays: Residual insecticide in the form of sprays are applied to obtain insecticidal effects for an extended period of time. The residual treatments are applied to surfaces, spots or crevices. Some residual insecticides can not be legally used in food areas. Effective life of the residue depends on many things, including type of insecticide, surface to which it is applied, temperature, and humidity.

Non-residual insecticides are applied for the control of insects only during the time of treatment and may be applied as contact treatment. Contact treatment is the application of a liquid spray for an immediate insecticidal effect. This treatment method is used only if there is a high probability that the spray will touch the pests.

Diazinon, a residual insecticide, offers potential for the control of cockroaches. It is effective when sprayed in hiding places. This compound is sometimes supplemented with a pyrethrin-based non-residual insecticide to force the insects from the hidden areas to the sprayed region where improved contact with the insecticide can occur[(2)]. Other compounds, such as flowable microencapsulated diazinon, are available for the control of cockroaches and other insects through spot, crack or crevice treatment, but not for application in food handling areas.

Amidinohydrozone is used as bait, and can be effective against cockroaches that resist other poisonous compounds, but the use of this insecticide indoors is not acceptable[(2)].

iii. Insecticide (other than fumigants) fogs and mists: This is a method of dispersing non-residual insecticides into the air through foggers, vapour dispensers or aerosol devices for treatment of storage spaces. Insecticide fogs and mists move through the air to reach insects that may not be reached by contact sprays. They are especially effective against flying insects and insects that cannot be reached with contact sprays. All doors and openings in the warehouse should be closed to prevent escape of the fog or mist.

This technique is usually used to apply pyrethrins, which are usually synergized with piperonyl butoxide[(2)]. Other common insecticides are pyrethroids. This technique using chemicals such as pyrethrins can aid in fly control.

iv. Electric flytraps: Electric flytraps, operating day and night, are one of the best methods for reducing the numbers of flying insects. It uses a high-voltage, low-amperage current on a conducting grid placed in front of a near-ultraviolet light source to attract the insects, which fly between the electric grids. Consequently, electrocuted, they fall into a removable tray. It is important to clean the tray and remove dead insects daily.

v. Sticky traps: These traps consist of sticky flypaper, pieces of waterproofed cord, or flat pieces of plastic covered with a slow-drying adhesive. Insects that come into contact with these traps are struck in the glue / adhesive coatings.

vi. Pheromone traps: Some of the traps are based on the use of a specific sex pheromone for insect attraction and have a trapping chamber where the insects are caught. Some studies have indicated use of food aroma attractants to be more effective than pheromones.

Hydropene, a non-pesticide insect growth regulator (IGR), is appropriate for cockroach control in sensitive environments because of its margin of safety and toxicity. It disrupts normal growth and development of immature cockroaches[(2)].

vii. Air curtains: A viable mechanical device for the control of insects is the air curtain, which not only reduces cold air loss in a refrigerated facility but also protects against insect and dust entry into establishments. Air curtains are most effective if the area being protected is under positive air pressure. These can be used at the entrances to the facility. The equipment is normally mounted outside and above the opening to be protected.

viii. Other potential control measures: Other potential insect control measures, include possible use of a) viruses, fungi and bacteria to produce diseases in specific pests, b) growth regulators, hormones and pheromones that can sterilize male pests, and c) growth regulators that interrupt the life-cycle of insects and prevent their reproduction.

Another potential control measure is use of milled diatomaceous earth. The milling process of fragments the diatom shell into sharp microscopic particles, which on contact penetrate the insects' wax coating, causing moisture depletion and death. If particles of the shell enter the body cavity, they interfere with digestion, reproduction and respiration [(2)].

However, these measures are not used commercially widely.

2.2 Rodent Control

Some primary methods of rodent control include:

i. Prevention of entry: Rat proofing an establishment can be accomplished most effectively by the elimination of all possible entrances. Poorly fitting doors and improper masonry around external pipes can be flashed or covered with metal or filled with concrete to block entry of rodents. Vents, drains, and windows

should be covered with screens (having openings not larger than 6.35 mm). Fan openings should be adequately protected against rodent entry. Decay in building foundations permit rats to burrow into the buildings, hence masonry should be repaired.

ii. Elimination of rodent shelters: Crowded storage rooms with poor house keeping provide sheltered areas for rodents to build nests and reproduce. These sheltered areas are less attractive to rodents if garbage is stored above 0.5 metres above ground level storing foodstuffs on racks at least 15 cm above ground level or away from walls[(2)].

Use of baits, traps, chemicals etc. are all secondary control practices and are detailed below:

i. Poisoning: Poisoning can be an effective method of rodent eradication. Some common rodenticides are warfarin, coumatetralyl and bromodialone. Rodents must consume these multidose poisons several times before death occurs. If immediate death of rodents is required, single-dose poisons, such as zinc phosphide are used. Baits containing single dose poisons should be prepared and administered according to directions provided by the manufacturer [(2)].

Baits containing rodenticides should be placed at several locations because rodents frequently travel only a limited distance from their shelter. The ideal locations for bait stations are along rodent runways and near feeding sites. The baits should be placed in bait boxes or beneath shelters. Where signs of rodent activity are recent and numerous, baits should be dispersed liberally and replaced frequently.

ii. Tracking powder: These powders may contain an anticoagulant or a single dose poison. Tracking powders are less effective against rats than mice. Sodium fluorosilicate and the anticoagulant chlorophacinone are poisonous tracking powders that are effective in mice control[(2)].

iii. Traps: In some cases where rats may not take to baiting, the trappings must be utilized. Snap Traps can be used; however, they must be given daily attention to be effective. Multiple-catch traps are for interior use and can hold up to 30 rodents. All require weekly inspection [(1)]. The traps should be set directly in the rodent's pathway.

iv. Glue boards: These are useful against mice. They can be distributed among the stacks of food where mice become entangled with the glue and cannot escape. Glue boards must be inspected frequently, to be certain that they are fresh and effective.

v. Ultrasonic devices: The eradication method uses ultrasonic sound waves that are supposed to repel the entry of rodents into areas where the sound producing device is installed. Although this method can reduce the presence of rodents, with prolonged hunger, rodents ignore the sound barriers.

2.3 Bird Control

The first step in the control of birds is to drive them out. The second step is to always be on the watch for signs of them and take precautions before they become a problem.

Birds can usually be prevented from entering areas by use of a '*bird light'*. This is a special designed piece of equipment which has a rotating yellow light that scares birds away when they come to roost. It must be used in semi dark areas indoors or in a dark dock area with open rafters[(1)].

If the use of bird light is not applicable and birds are found to roost on areas where they can defecate below and soil the storage or food equipment, then the rafters and roosting areas above can be covered with a liquid bird repellent (formulations of polybutylene or polybutene) which gets on their feet making them highly uncomfortable. They leave and will almost never return[(1, 3)]. Other techniques that may be effective if conducted frequently are

removal of bird nests and spraying birds with water as a form of harassment.

'Porcupine wire' with prickly spikes extending upwards is used as a tactile bird deterrent and can be affixed to ledges, beams, or other bird resting sites with silicone glue. Other structural tactile deterrents include *'pin and wire'* and *'spider legs'* that can be used on ledges and small flat surfaces, respectively to prevent settling of birds [(3)].

Bird density can be reduced through the use of commercially available avicides. Use of avicide products (containing 4-aminopyridine) when used in diluted strengths with baits containing corn or other feed materials make most birds sick but not kill them. Birds that consume this toxicant generally become distressed and disoriented, often dropping to the ground and making distressed sounds and movements. The noises, as well as the appearance of affected birds, generally frighten away other birds in the area, generally pigeons[(1, 2, 3)].

5. USE OF CHEMICAL PESTICIDES

Use of chemical pesticides for control of pests is governed by the provisions of the Insecticides Act, 1968 and the Insecticides Rules, 1971. In dairy facilities use of chemical pesticides need lot of care and precautions as under:

- **Only those pesticides should be used which are specifically permitted by the Central Insecticides Board and Registration Committee (Ministry of Agriculture) under the Insecticides Act** (*See website: http://cibrc.nic.in).*
- Insecticides should not be sprayed in food areas during hours of operation.
- Prior to the use of pesticides approved for application in food processing areas, all exposed food and supply items should be covered or removed from the area to be treated. Under no

circumstances should food, equipment, and utensils be contaminated with pesticides.

- A fumigation procedure is not recommended unless it appears to be the only effective method, and even then only when it is carried out by a professional fumigator.
- Insecticides should be used for only designated purposes. An insecticide effective against one type of insect may not destroy other pests.
- The weakest poison that will destroy the pests should be used with the recommended concentration.
- Prolonged exposure to sprays should be avoided. Protective clothing should be worn during application, and hands should be washed after the application of pesticides.

To minimize possible contamination, a dairy facility should store on the premises only pesticides essential to control pests that present a problem to the establishment. The following storage precautions should be observed:

- Pesticides should be stored in a dry area and at a temperature that does not exceed 35^{O}C.
- The areas where pesticides are stored should be located away from food handling and storage areas. These should also be separated from other hazardous materials such cleaning compounds and other chemicals.
- Pesticides should not be transferred from their labelled package to any other storage container.
- Empty pesticide containers should be placed in plastic receptacles marked for disposal of hazardous wastes.

6. SUMMARY

Pests of major significance to dairy industry include insects, rodents and birds. Control of pests can be more effective through prevention of entry into dairy establishments and the elimination

of shelter areas and food sources for their subsistence and reproduction. If pests become established, pesticides, traps and other control techniques are useful in eliminating these. The eradication devices should be considered a supplement to, rather than a replacement for, effective sanitation and good housekeeping practices. Because pesticides are toxic, these compounds should be selected properly and handled only under professional supervision.

REFERENCES

1. Gould, W.A. (1994), *Current Good Manufacturing Practices / Food Plant Sanitation* (Second Edition), CTI Publication, Inc., Maryland, pp 127-156.

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3. Hui, Y.H. *et al* (2003), *Food Plant Sanitation*, Marcel Dekker, New York, pp 265-358.

4. USAID (2006), *Commodity Reference Guide - Section IV: Controlling Damage to Food Commodities*, USAID Food for Peace. Website: http://www.usaid.gov/our_work/humanitarian_ assistance/ ffp/crg/sec4.htm

NEWS SECTION

1. **Notification GSR 131(E) of 3 March 2006 of the Ministry of Health & Family Welfare:** The Notification specifies dates for applicability of various provisions of the Notification GSR 356(E) of 7 June 2006 which provides revised standards for various milk products. As per the Notification all revised standards for milk products listed in GSR 356 (except cheese, processed cheese, processed cheese spread, ice cream and kulfi, dried ice cream and dried frozen dessert / confection, frozen dessert / frozen confection, and milk ice / milk lolly) have become applicable w.e.f. 7 March 2006. Revised standards for other products are likely to become applicable with some modifications by 7 September 2006.

2. **Draft Notification GSR 152(E) dated 10.03.2006 of the Ministry of Health & Family Welfare:** The Draft Notification proposes some amendment to PFA Rules and invites comments from stakeholders by 8 May 2006. The amendment proposes to define genetically modified food and introduce compulsory additional labelling requirements for such food. It also proposes to restrict manufacture, import, transportation, storage, distribution or sale in the country of raw or processed food or any ingredient of food, food additive or any food product that may contain GM material without the approval of Genetic Engineering Approval Committee (GEAC) constituted under the Environment Protection Act, 1986.

3. **Food Safety and Standards Bill 2005:** The Standing Committee of the Parliament which was tasked to evaluate the '*Food Safety and Standards Bill 2005'* has submitted its report to the Parliament in February 2006. Some important recommendations made by the Standing Committee include: revising definition of food to include drinking water; to exempt petty manufacturers, small scale, and tiny food business operators from the requirements of license, registration and

related provisions; punishment for making false complaints against food safety officer; food business operator to be entitled to send 4th sample for analysis by an accredited laboratory and considering the report as a part of the evidence etc.

4. **Codex Alimentarius Commission (CAC):** The 7th Session of the Codex Committee on Milk and Milk Products (CCMMP) was held during 27 March-1 April 2006 in Queenstown, New Zealand. The Committee has finalized draft standards for individual cheeses (including Cheddar, Danbo, Emmental and Mozarella), dairy fat spread, and milk products in which milk fat is replaced by vegetable oils. All these draft standards would now be considered for final adoption by the 29th Session of the Codex Alimentarius (Geneva, July 2006). The Committee also forwarded the Codex *Model Export Certificate for Milk and Milk Products* to the Commission for preliminary adoption. The report can be downloaded from the Codex website: http://www.codexalimentarius.net/web/archives.jsp?lang=en

   The 38th Session of the Codex Committee on Food Additives and Contaminants (CCFAC) took place during 24-28 April 2006 in The Hague, The Netherlands. The Committee finalized the draft revised *Preamble of the Codex General Standards for Food Additives,* the draft *Code of Practice for the Prevention and Reduction of Dioxin and Dioxin-like PCB Contamination in Foods and Feeds,* and the revised *Guideline Levels for Radionuclides in Foods Contaminated Following a Nuclear or Radiological Emergency for Use in International Trade.* The report would shortly be posted on the Codex website: http://www.codexalimentarius.net/web/archives.jsp?lang=en

   Besides, the 23rd Session of the CCGP was also held in April 2006. The report is available at the Codex website: http://www.codexalimentarius.net/web/archives.jsp?lang=en

The period May-July 2006 features the following Codex Committee meetings in addition to those being organized in May 2006 and already listed in our previous issue of *Technews*:

- 16th Session of the Codex Committee on Residues of Veterinary Drugs in Foods (8-12 May, Mexico). The Committee is elaborating the *Draft Code of Practice to Minimize and Contain Antimicrobial Resistance.*
- 29th Session of the Codex Alimentarius Commission (July, Geneva). The Commission would consider for preliminary / final adoption, among others, of various draft standards which have been forwarded to it by the 7th CCMMP (March-April, New Zealand), 38th Session of the CCFAC (April 2006, Netherlands) etc.

5. **International Dairy Federation (IDF):** The IDF has published the following Bulletins/Standards recently:

   - IDF Bulletin 405/2006: *"Comprehensive Review of Scientific Literature Pertaining to Nitrogen Protein Conversion Factors"*. (This publication is available free of cost in electronic form at the website: http://www.fil-idf.org/content/default.asp? PageID=381).
   - IDF Standard 074/ISO 3976: *"Milk fat – Determination of Peroxide Value"*.

   For purchasing the IDF publications, contact Mr. Oscar Chavez, Office Manager, IDF, Brussels, Belgium (Email: OChavez@fil-idf.org).

   The IDF World Dairy Summit and Congress 2006 will be held in Shanghai, China, on 20–23 October 2006. For more details, visit the IDF Congress 2006 website: http://www.idf2006shcn.com.

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