



# THE ROLE OF HACCP IMPLEMENTATION IN IMPROVING COMPLIANCE LEVEL OF FOOD PREMISES IN DUBAI

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# What is food control

- *Food control is a very complex series of measures; it is all measures necessary to ensure the safety and wholesomeness of food during the chain of production to consumption.*

*..... it includes:*

# What is food control . . . . .Cont.

- *Control of imports and exports of food and food related items.*
- *Premise inspection, corrective actions, and Follow-ups.*
- *Control of distribution channels.*
- *Consumer education.*
- *Health awareness of employees.*

# What is food control . . . . .Cont.

- *Surveys and sampling of food from all the food chain.*
- *Research and development.*
- *Implementation and development of Legislations and Standards.*

# Objectives of Food Control

- *Confirm expected standards / controls are achieved.*
- *Ensure the production of safe, wholesome food of good quality and shelf-life.*
- *Ensure compliance with specific legislation and to facilitate the use of the due diligence defense. (not used in Dubai)*
- *Identify problems, for example, sources of contamination.*

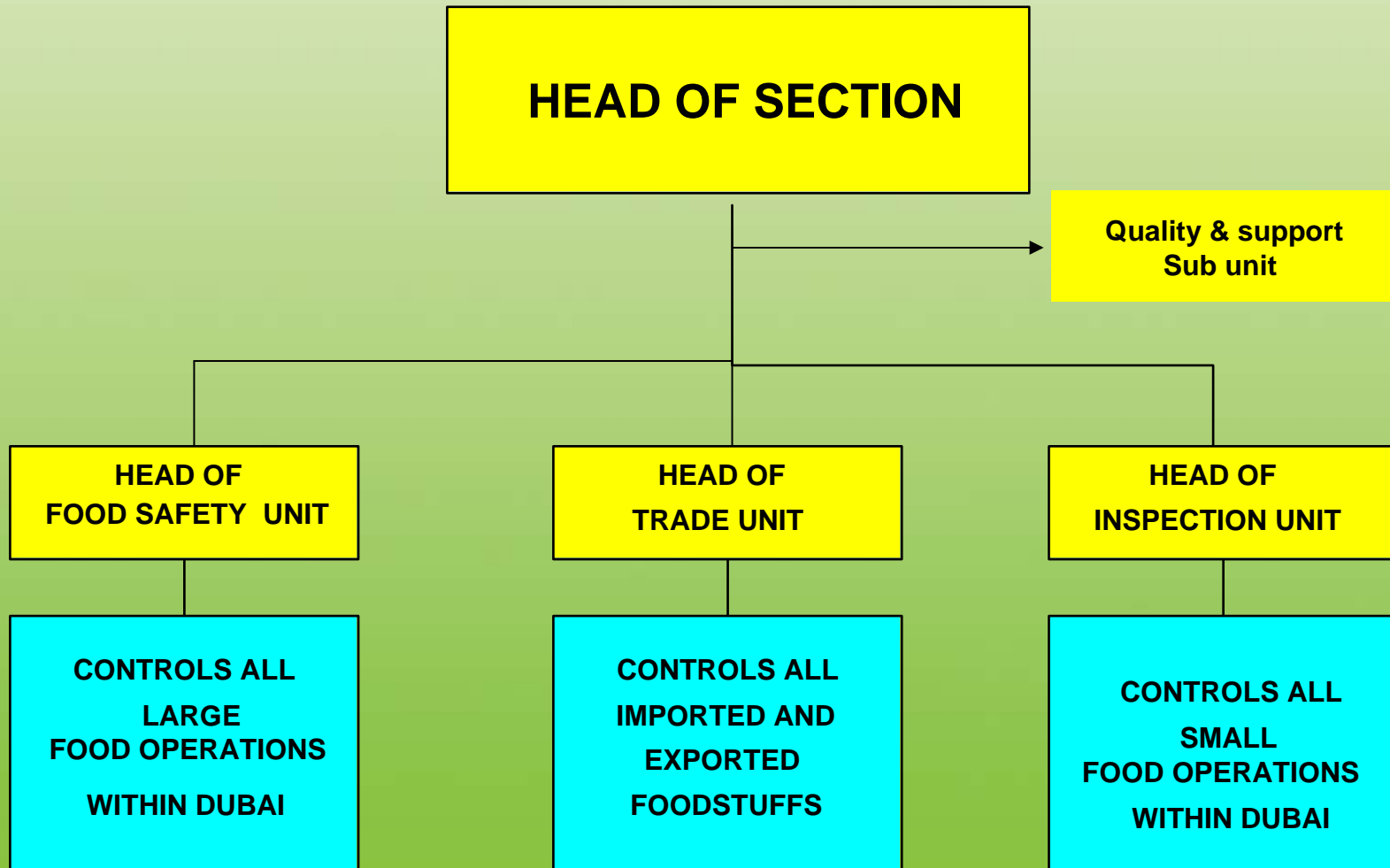
## Objectives of Food Control ...Cont.

- *Satisfy customers and enforcement officers and minimize complaints.*
- *facilitate modification of procedures and confirm effectiveness of control systems.*
- *Encourage commitment and improve motivation of staff.*



# Food Control In Dubai

- The Food Control Section (FCS) of Dubai Municipality is the enforcement body which is responsible for achieving all food safety objectives in Dubai including the implementation of food safety management programs and good hygiene practices .





- The Food Control Section (FCS) has two main tasks:
  - Assuring the safety and wholesomeness of imported food.
  - Assuring the safety and wholesomeness of food in transportation, manufacturing, preparation and display.



- FCS also carries out many subtasks like:
  - Issuing new premise permit for licensing.
  - Qualifying food workers and training companies.
  - Conducting surveys.
  - Collecting food samples



- Approving HACCP programs.
- Issuing export food safety certificates.
- Issuing food destruction certificate.
- Approving transportation vehicles.
- Approving food suppliers.
- Approving and registering food items.

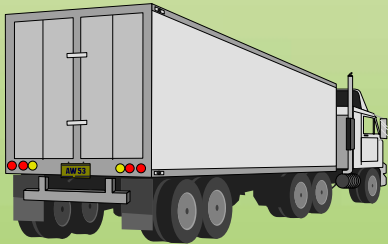


- FCS has 140 employees in which:
  - 63 food inspectors for the control of import and export of food in 9 different ports (some ports work 24 hrs),
  - and 41 inspector assigned for premise inspection, (8400) food premises (as per 2007).

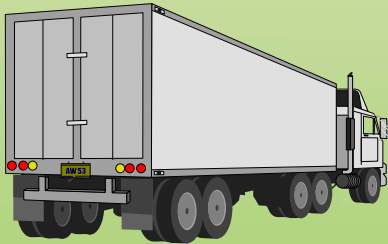
# SECTION WORKLOADS

# EVER INCREASING WORKLOADS

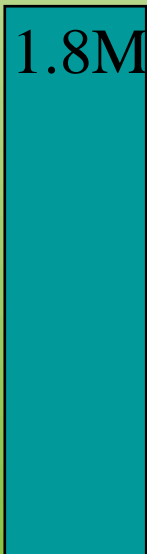
## TRADE UNIT:



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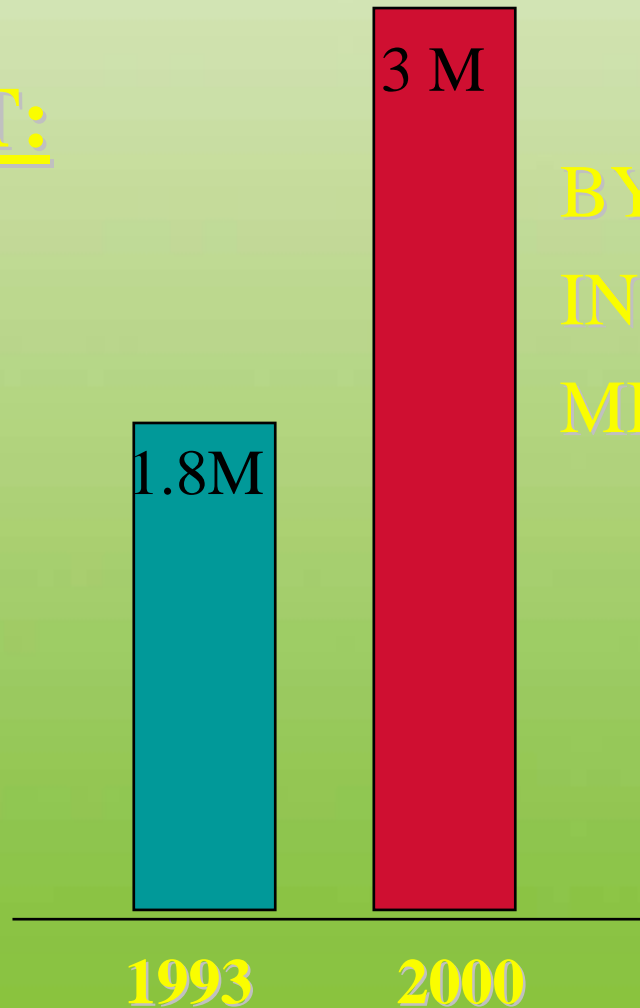
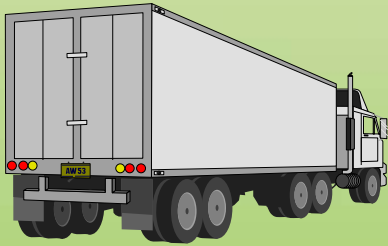
IN 1993 IMPORTS  
REACHED 1.8  
MILLION TONNES



1993

# EVER INCREASING WORKLOADS

## TRADE UNIT:

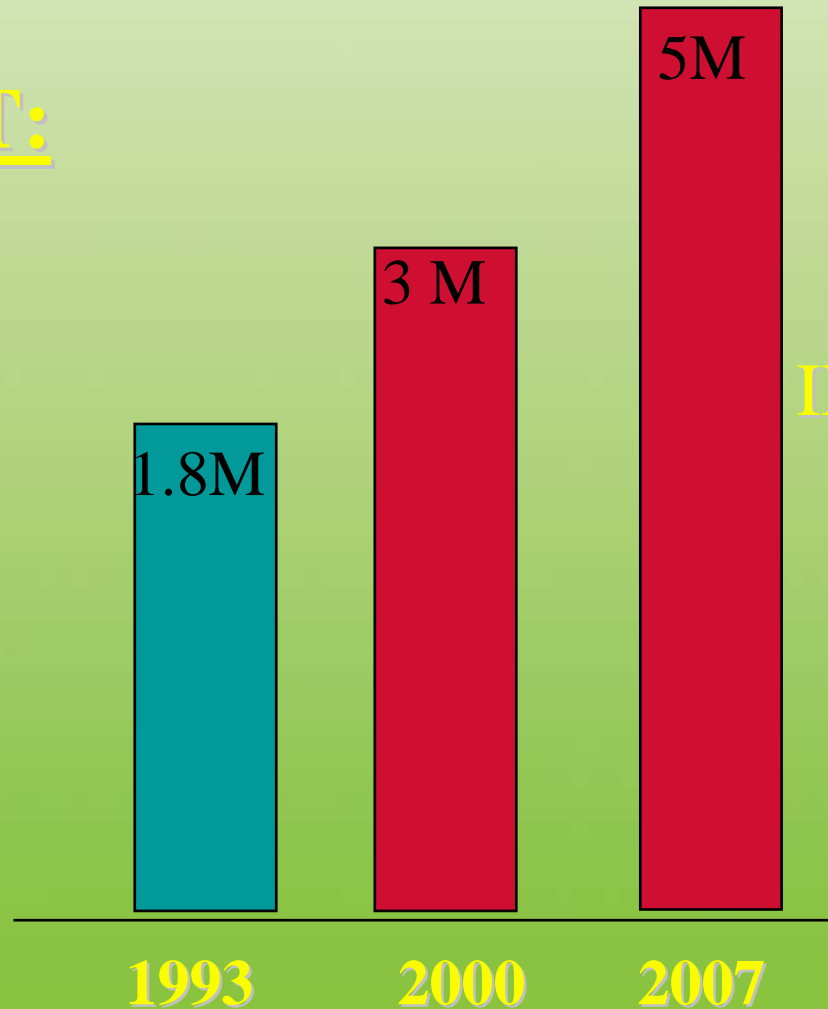
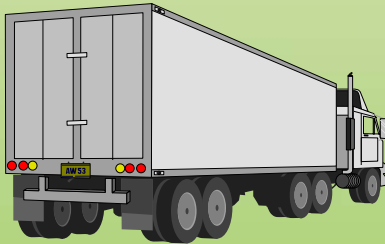


BY 2000 IMPORTS  
INCREASED TO 3  
MILLION TONNES



# EVER INCREASING WORKLOADS

## TRADE UNIT:



BY 2007  
IMPORTS  
INCREASED  
TO 5  
MILLION  
TONNES

# EVER INCREASING WORKLOADS

INSPECTION:



# EVER INCREASING WORKLOADS

## INSPECTION:



2500

IN 1991 THERE  
WERE 2500  
PREMISES TO  
INSPECT

1991

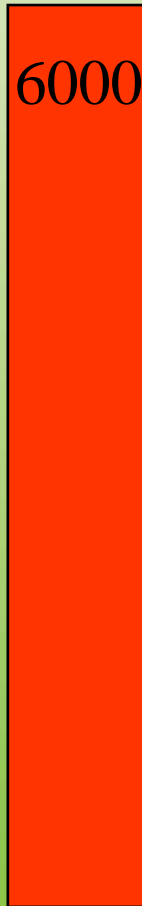
# EVER INCREASING WORKLOADS

## INSPECTION:



2500

1991



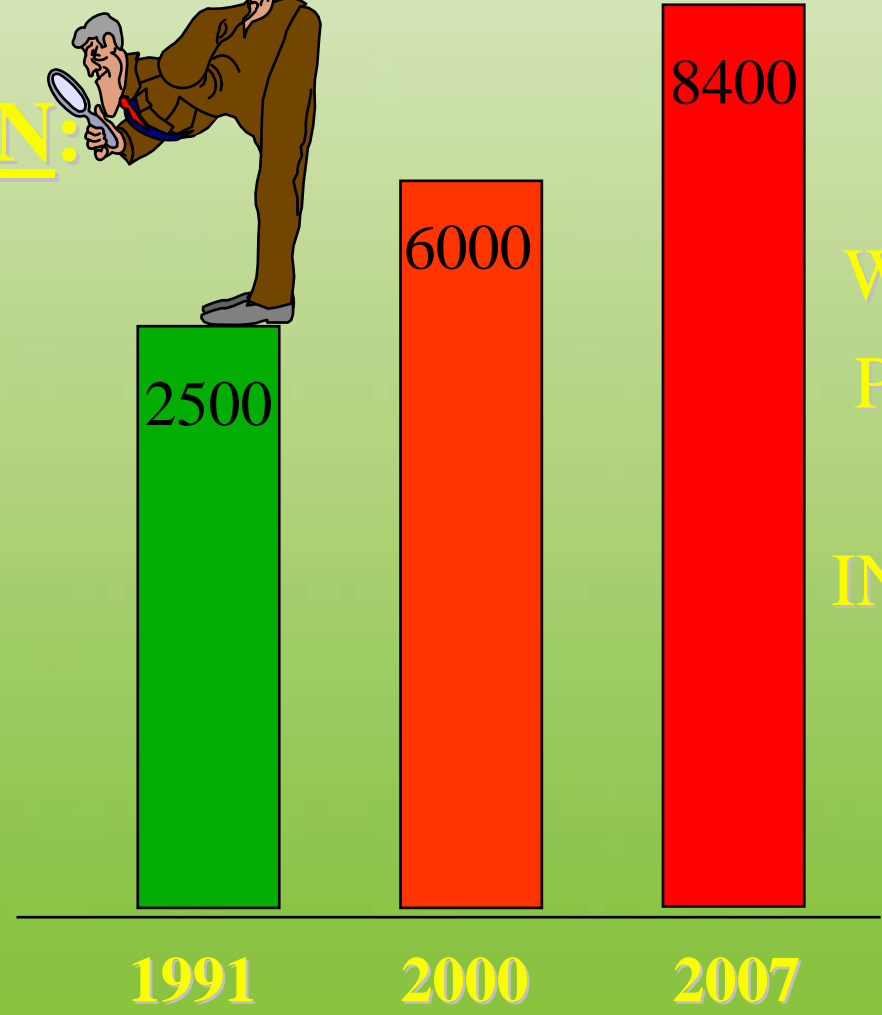
6000

2000

BY 2000 THERE  
WERE 6000  
PREMISES TO BE  
INSPECTED

# EVER INCREASING WORKLOADS

## INSPECTION:



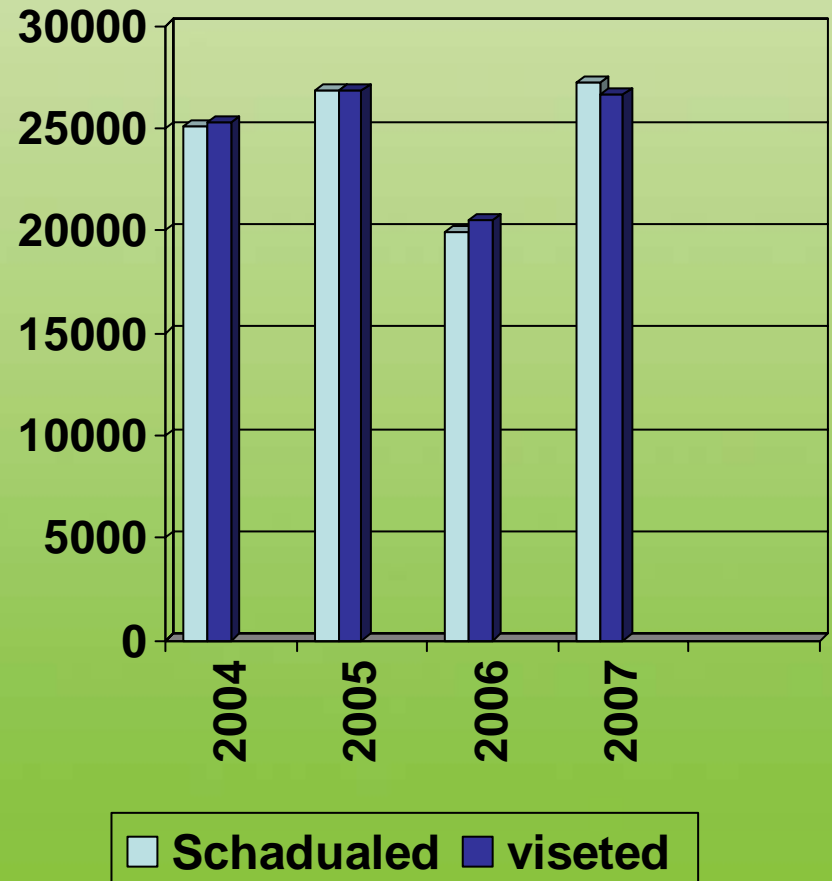
BY 2007  
THERE  
WERE 8400  
PREMISES  
TO BE  
INSPECTED



# URGENT & CREATIVE SOLUTIONS WAS REQUIRED

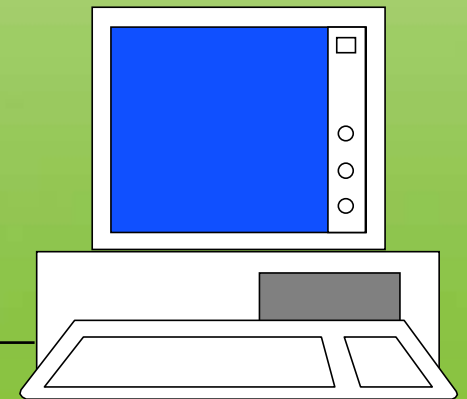
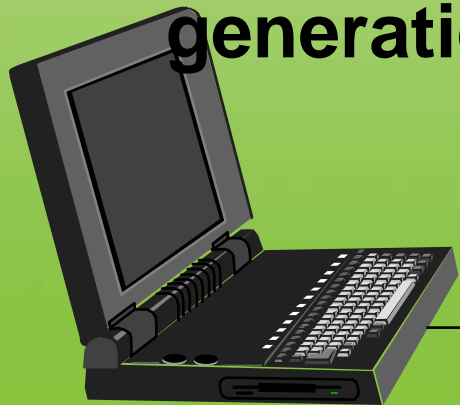
- Computerized inspection program
- Risk based inspection system
- Enforcement of Risk management programs like HACCP
- Risk based sampling program
- Food employees training program

- FCS is using an electronic Inspection program.
- 26666 inspections per year (as per 2007 annual report).
- This electronic program started in 1999 covering all inspection activities.



# COMPUTERISATION OF INSPECTION PROGRAM

- A network system with dedicated software
- Inspections carried out using computer notebook
- Reports printed on ribbon printer at time of inspection in either Arabic, English
- Statistical analysis of data and report generation





- The inspectors are using a check list tailored to each type of premises activities like restaurants, food factories, hotels ... etc.

## **Violations related to General Cleanliness**

The premises / equipment / transportation means / utensils was / were not clean / not sanitized

The toilet facilities were dirty

## **Violations related to Equipment Design and availability**

Thermometers were missing / broken / inaccurate / not calibrated / no temperature records

Unapproved food preparation utensils

Rusty or broken utensils

# GRADING OF FOOD PREMISES

**B**

**C**



**D**

**E**



# HACCP IN Dubai

- (39 premises) have implemented a certified HACCP system since 2003 (other non certified HACCP systems are not included in our study as they are not recognized by FCS).

# HACCP IN Dubai.....Cont.

- The Food Control Section started the program by updating its legislation to include issues related to implementing the HACCP programs in Dubai.
- After that, fourteen companies involved in HACCP training & consultations were approved.

# HACCP IN Dubai.....Cont.

- This was followed by training the food inspectors on the HACCP system
- Then, awareness campaigns about the application of HACCP and its implication on the food industry were conducted.
- start implementing the system with the high-risk food establishments



## Dubai HACCP Certification Process

- The FCS puts a code for the approval and certification of HACCP consultancy, Certification, and training companies.
- Premises are subject to routine and non routine inspection visits.
- Only certified companies are allowed to provide HACCP consultancy, certification and training.

## The Aims & Objectives of the Study

- Providing practical evidence to the beneficial implementation of HACCP in order to be used in FCS communication with all the parties concerned
- Demonstrating how well HACCP works in practice and to what extent it can actually control and reduce food safety hazards and risks.
- Evaluating FCS HACCP program.

# Methodology

- In this study we use an Unobtrusive approach, "Documentary analysis OR Content analysis method" in which we work on “analyzing the Data of hygiene inspections of Food manufacturing and catering premises in Dubai”



This study evaluates:

- The correlation between HACCP implementation and the reduction in violations.
- The correlation between HACCP implementation and the improvement of Hygiene grade of premises.
- Calculating the over all trend in premises improvement over the period of our study.

# Limitations

- The businesses are not all the same type
- Not all implements HACCP at the same time.
- For most businesses the time after implementation was very short.
- there is also differing numbers of inspections - before and after

## The status of all Premises before Implementation

- During the period 2000 – 2005 a total of **2721** routine inspections were undertaking on the **404** food premises (manufacturing & catering) as per 2005 statistics.
- The grading system applied only to the routine inspections (other types of inspections like random, complaints, and follow-ups were not included)

## The Grading status of all Premises

| YEAR               | AVERAGE SCORES | STANDARD DEVIATION | TREND IN IMPROVMENTS |
|--------------------|----------------|--------------------|----------------------|
| 2000               | 80.11          | 9.80               | -                    |
| 2001               | 74.78          | 9.55               | -0.07                |
| 2002               | 75.18          | 6.20               | 0.01                 |
| 2003               | 83.58          | 8.21               | 0.11                 |
| 2004               | 81.78          | 7.41               | -0.02                |
| 2005               | 82.21          | 9.79               | 0.01                 |
| The geometric mean | 79.53          | 8.38               | 0.01                 |

# The Violations status of all Manufacturing and Catering premises

| YEAR                                    | AVERAGE NO. OF VIOLATIONS | STANDARD DEVIATION | TREND IN IMPROVEMENTS |
|---|---------------------------|--------------------|-----------------------|
| 2000                                    | 8.28                      | 4.85               |                       |
| 2001                                    | 12.52                     | 4.81               | 0.51                  |
| 2002                                    | 12.16                     | 4.98               | -0.03                 |
| 2003                                    | 6.34                      | 3.11               | -0.48                 |
| 2004                                    | 8.25                      | 4.01               | 0.30                  |
| 2005                                    | 6.91                      | 3.95               | -0.16                 |
| The geometric mean of improvement trend | 8.77                      | 4.23               | 0.03                  |

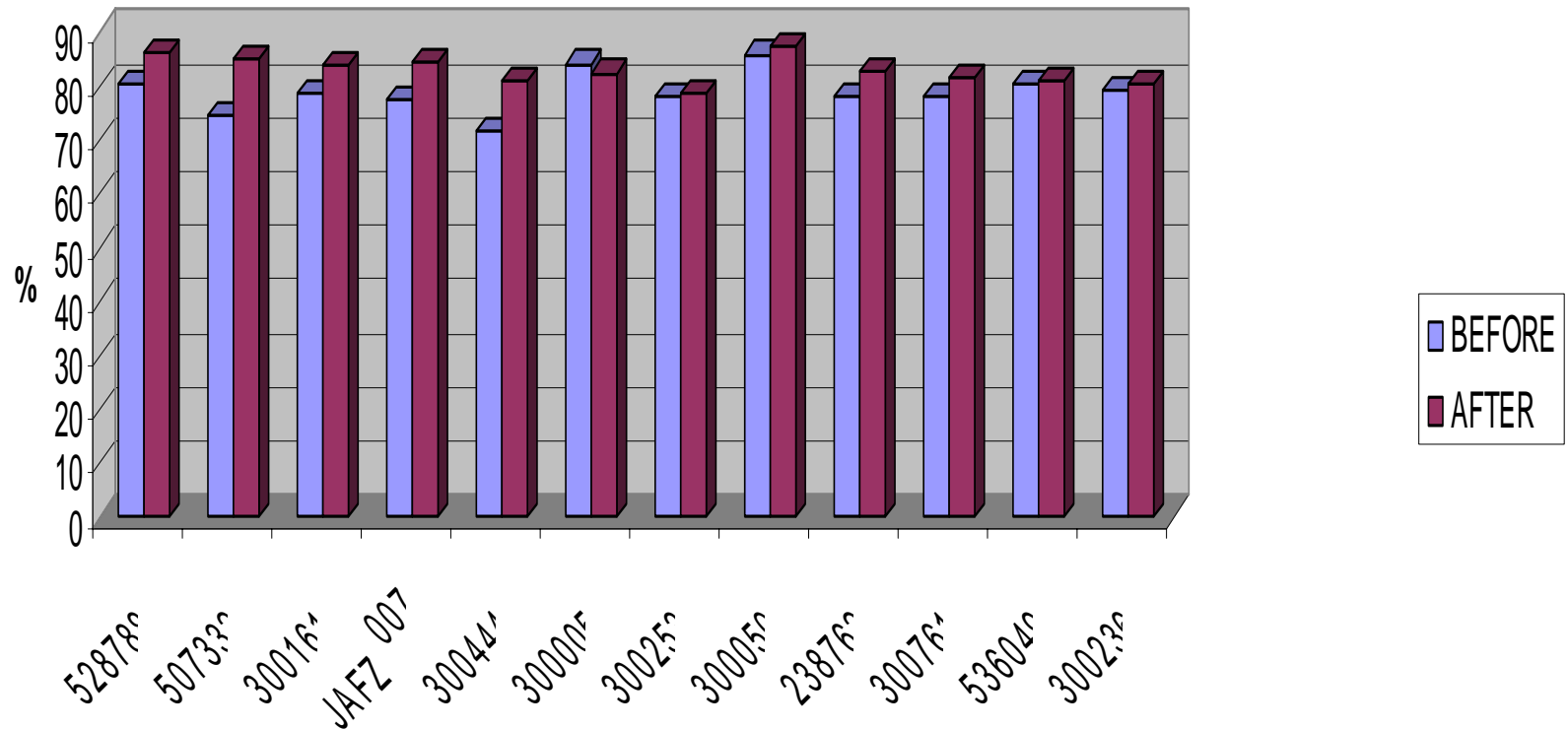
# Grading status for ALL HACCP premises before & after implementation

|        | <b>General scores before</b> | <b>General grade before</b> | <b>General scores after</b> | <b>General grade after</b> |
|--------|------------------------------|-----------------------------|-----------------------------|----------------------------|
| Points | 77.76                        | B                           | 83.21                       | B                          |
| SD     | 9.55                         |                             | 6.81                        |                            |

# Selected HACCP premises in Detail

| NO. | Premises code  | AVERAGE GRADE |      |       |      | TREND OF PROGRESS in Grade | LAST INSPECTION SCORES | LAST GRADE 2005 |
|-----|----------------|---------------|------|-------|------|----------------------------|------------------------|-----------------|
|     |                | BEFORE        | SD   | AFTER | SD   |                            |                        |                 |
| 1   | 528788         | 80.67         | 8.69 | 86.5  | 4.51 | 0.07                       | 86                     | B               |
| 2   | 507332         | 74.67         | 2.73 | 85.24 | 3.33 | 0.14                       | 88                     | B               |
| 3   | 300161         | 78.64         | 7.43 | 84    | 5.29 | 0.07                       | 89                     | B               |
| 4   | JAFZ007        | 77.57         | 7.66 | 84.6  | 2.3  | 0.09                       | 83                     | B               |
| 5   | 300444         | 71.94         | 7.1  | 81.25 | 4.65 | 0.13                       | 87                     | B               |
| 6   | 300005         | 84.25         | 5.37 | 82.5  | 7.85 | -0.02                      | 91                     | A               |
| 7   | 300253         | 78            | 5.22 | 79    | 3.46 | 0.01                       | 81                     | B               |
| 8   | 300050         | 86            | 4.93 | 87.67 | 2.31 | 0.02                       | 85                     | B               |
| 9   | 238762         | 78.33         | 4.04 | 83    | 8.19 | 0.06                       | 90                     | A               |
| 10  | 300761         | 78.2          | 8.35 | 81.88 | 6.75 | 0.05                       | 81                     | B               |
| 11  | 536049         | 80.4          | 2.31 | 81.33 | 4.16 | 0.01                       | 86                     | B               |
| 12  | 300236         | 79.14         | 2.52 | 80.33 | 5.51 | 0.02                       | 74                     | C               |
|     | GIOMETRIC MEAN | 78.98         | 5.53 | 83.11 | 4.86 | 0.05                       | 85.08                  |                 |

## PROGRESS IN GRADE OF PREMISES BEFORE AND AFTER HACCP IMPLEMENTATION



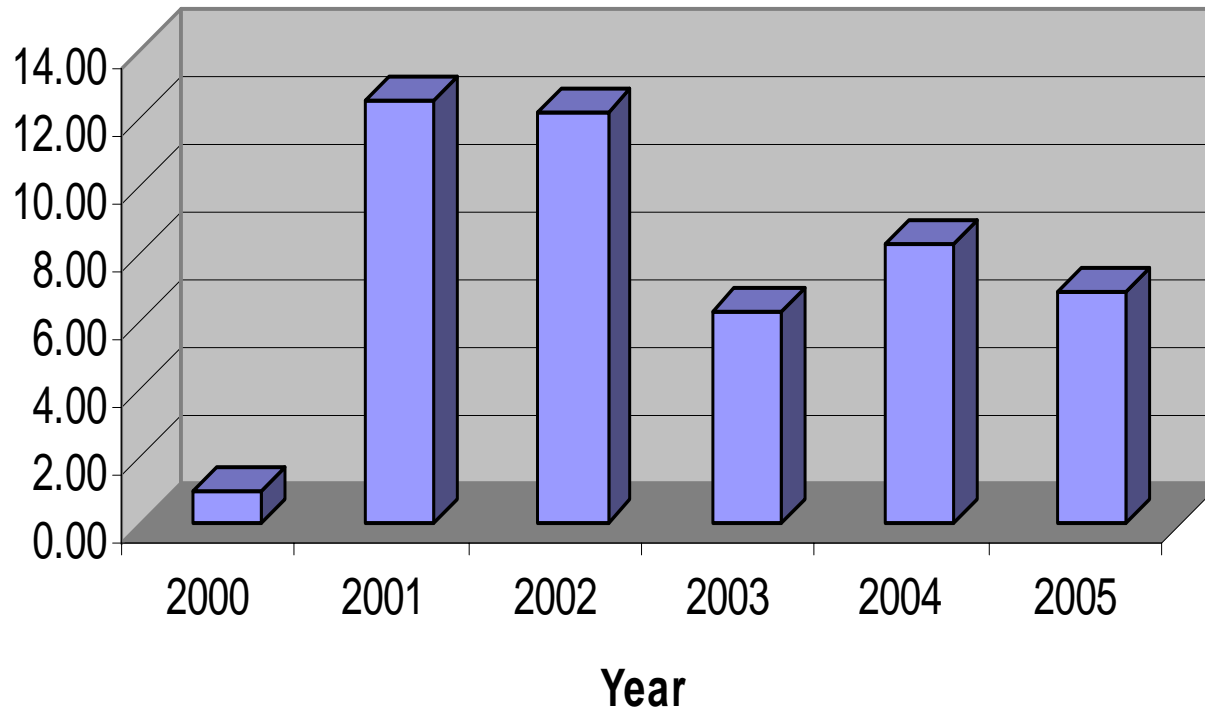


# The progress in the no. of violations for all manufacturing and catering

| YEAR                                    | AVAREGE NO. OF VIOLATIONS | STANDAR D DIVIATION | TREND IN IMPROVMENTS |
|---|---------------------------|---------------------|----------------------|
| 2000                                    | 8.28                      | 4.85                |                      |
| 2001                                    | 12.52                     | 4.81                | 0.51                 |
| 2002                                    | 12.16                     | 4.98                | -0.03                |
| 2003                                    | 6.34                      | 3.11                | -0.48                |
| 2004                                    | 8.25                      | 4.01                | 0.30                 |
| 2005                                    | 6.91                      | 3.95                | -0.16                |
| The geometric mean of improvement trend | 8.77                      | 4.23                | 0.03                 |

# The progress in the no. of violations for all manufacturing and catering

## Average No. Of violations per inspection visited



# The % progress of violations after implementation

| Category | Category description             | Category count | Average %      |
|----------|----------------------------------|----------------|----------------|
| A        | premises facilities or equipment | 15             | -23.28%        |
| B        | management or documentation      | 10             | -32.28%        |
| C        | cleaning or cross contamination  | 15             | 11.32%         |
| D        | temperature control              | 4              | -40.17%        |
|          |                                  | Overall        | <b>-21.10%</b> |

*the over all progress of violations in manufacturing and catering premises before & after HACCP*

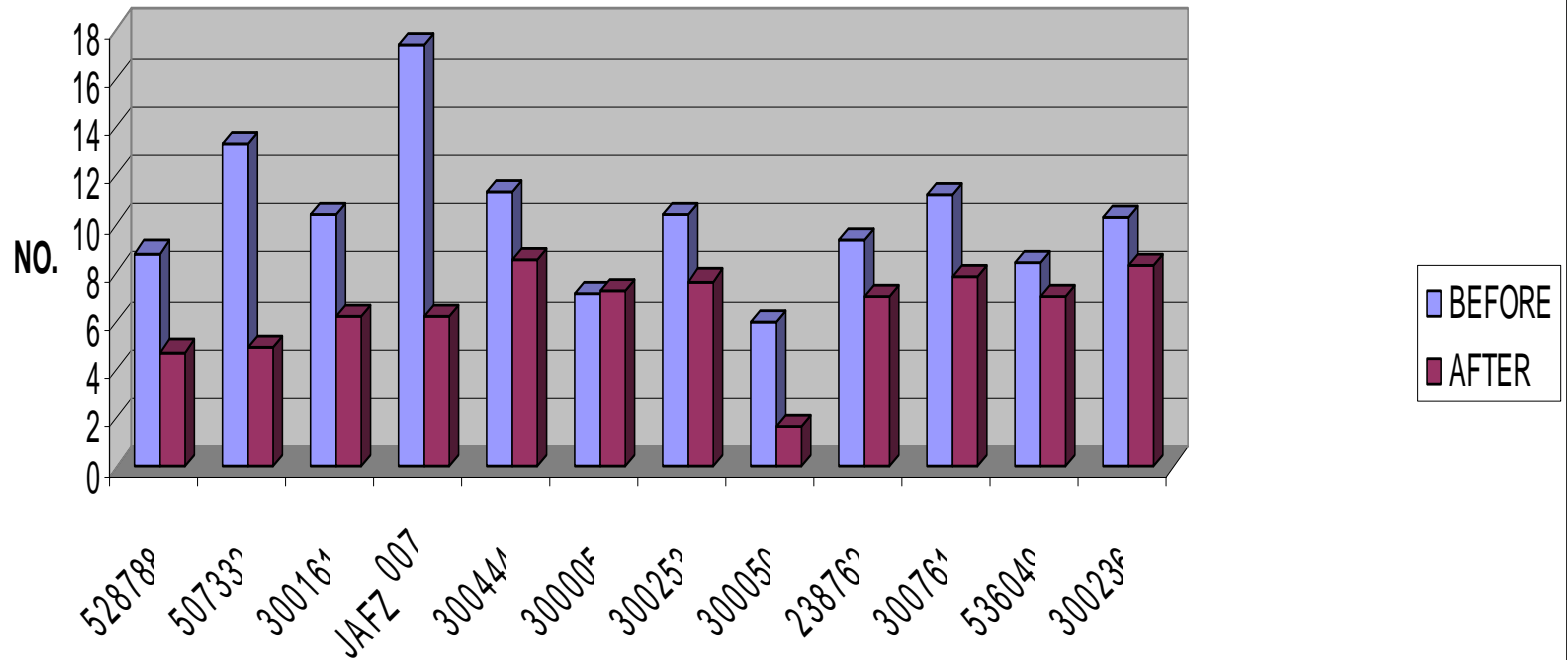
|                | <b>General av. violations before</b> | <b>General av. violations after</b> |
|----------------|--------------------------------------|-------------------------------------|
| Av. violations | 10.77                                | 5.95                                |
| SD             | 6.86                                 | 3.74                                |

# The progress in the no. of violations For selected HACCP premises

| NO. | Premises code         | AVERAGE NO. OF VIOLATIONS |       |       |      | TREND IN<br>PROGRESS OF<br>VIOLATIONS |
|-----|-----------------------|---------------------------|-------|-------|------|---------------------------------------|
|     |                       | BEFORE                    | SD    | AFTER | SD   |                                       |
| 1   | 528788                | 8.83                      | 4.36  | 4.75  | 2.06 | -0.46                                 |
| 2   | 507332                | 13.33                     | 1.37  | 4.88  | 3.09 | -0.63                                 |
| 3   | 300161                | 10.36                     | 4.01  | 6.25  | 2.63 | -0.40                                 |
| 4   | JAFZ007               | 17.43                     | 12.37 | 6.2   | 1.48 | -0.64                                 |
| 5   | 300444                | 11.33                     | 5.08  | 8.5   | 3    | -0.25                                 |
| 6   | 300005                | 7.13                      | 3.98  | 7.25  | 6.08 | 0.02                                  |
| 7   | 300253                | 10.44                     | 3.61  | 7.67  | 3.06 | -0.27                                 |
| 8   | 300050                | 6                         | 2.33  | 1.67  | 1.15 | -0.72                                 |
| 9   | 238762                | 9.33                      | 6     | 7     | 4    | -0.25                                 |
| 10  | 300761                | 11.2                      | 4.04  | 7.88  | 3.52 | -0.30                                 |
| 11  | 536049                | 8.4                       | 3.36  | 7     | 2.65 | -0.17                                 |
| 12  | 300236                | 10.29                     | 4.79  | 8.33  | 3.51 | -0.19                                 |
|     | <b>GIOMETRIC MEAN</b> | 10.34                     | 4.61  | 6.45  | 3.02 | -0.36                                 |

# The progress in the no. of violations for HACCP premises before and after

**PROGRESS IN VIOLATIONS OF PREMISES BEFORE AND AFTER IMPLEMENTING HACCP**



# In summary

- The implementation of HACCP program proves to improve the health and hygienic status of premises 5% much more than general trend of improvement.
- The number of violations decreased dramatically by (36%) for those premises implementing HACCP (10.77 to 5.95) compared to the mean of all premises (3% decrease annually)

# Recommendations

- To fasten the process of HACCP implementation, so as to have more improvements in the compliance level.
- Expanding the HACCP implementation process in order to include small and medium size establishments (SME's).
- To harmonize HACCP implementation in All UAE governments.
- More focus on the weak points highlighted by this study.



# Recommendations .....Cont.

- FCS must effectively communicate its food safety and Public Health mission and its rules and procedures, using all available methods.
- More focus on maintaining appropriate skills and training of food inspectors in order to harmonize the inspection process.
- More focus on training and education of food workers and employees.

# Recommendations .....Cont.

- To develop a mechanism that allows to periodically monitor and analysis of the inspection findings so that this work will be continuous.
- To create Food Safety Objectives (FSO's) related to premise compliance level.
- More efforts from Codex in publishing its standards in many languages so as all non English speaking nations benefit from it.