

ANNUAL BULLETIN

2078/79 (2021/22)



Government of Nepal
Ministry of Agriculture and Livestock Development
Department of Food Technology and Quality Control

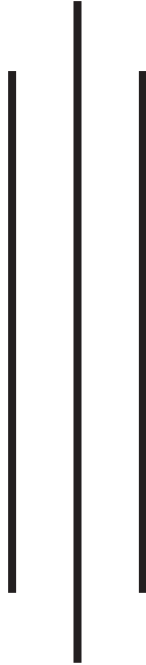
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Preface

It is my great pleasure to present the Annual Bulletin of the Department of Food Technology and Quality Control. This regular publication serves to the department's unwavering commitment to excel in the field of food and feed-related technology and quality assurance during the fiscal year 2078/79 (2021/22). It provides the comprehensive overview on enforcement of Food Act -2023, Food Regulation -2027, Feed Act -2033, Feed Regulation-2041, food and feed related analysis through laboratory services, food technology research and development, export/import certification, pesticide residue analysis by Rapid Bio-assay for Pesticide Residue (RPBR), training for food entrepreneurs, and various nutrition related activities.

Food Technology and Quality Control play a crucial role in ensuring the safety, nutritional value, and overall quality of the food we consume. The purpose of this publication is to disseminate the valuable information about multifaceted realm of food safety as well as familiarize readers with the role and activities undertaken by this department. The bulletin not only celebrates our achievements but also provides valuable resource for professionals and enthusiasts alike, offering insights into past few years' trends, regulatory updates, our response to food safety challenges and information to create awareness about food adulteration. With this, consumers may benefit and be informed about their right to food in the market for their health and nutritional well-being.

I look forward to the continuous growth and success of this department. Together, let's continue to push the boundaries of knowledge and innovation, making a lasting impact on the field of food science, nutrition, technology and quality control.

.....
Dr. Matina Joshi Vaidya

Director General

Department of Food Technology and Quality Control

Babarmahal, Kathmandu



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Our Ref. No.

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Editorial

Department of Food Technology and Quality Control (DFTQC) is the responsible government organization under the Ministry of Agriculture and Livestock Development of Government of Nepal (GoN) to implement Food and Feed Act and related laws so as to protect the right of consumers by assuring safety, quality and nutritional status of food and feed products available in the country. Besides these, the Department has also promotional mandate to support the commercialization and industrialization activities of agricultural produces as well as facilitation of trade by developing the appropriate food technology packages to assure safe, quality and nutritious food in the market. Considering these two broad objectives, GoN is implementing various activities related to food technology development and quality control activities on annual basis through this Department.

This bulletin includes the progress made by various Divisions, Sections and Offices under the department throughout the fiscal year 2078/79 B.S. (2021/22). There are two Divisions (Food and Feed Safety and Quality Control Division and Food Technology Development and Nutrition Division), one National Food and Feed Reference Laboratory, one SPS National Enquiry Point, one Codex and Infosan Secretariat, eight Food Technology and Quality Control Offices, twelve Food Import Export Quality Certification Offices and twenty-two Food Technology and Quality Control Division Offices. Based on the annual progress report received from all Divisions, Sections and Offices, Planning Monitoring and Evaluation Section of DFTQC has compiled the information in the form of Bulletin.

In this connection, Editorial board would like to thank all responsible officials of Divisions, Sections and Offices for providing the required information. Special effort made by the Editorial members is highly appreciated. Furthermore, special thanks goes to the advisory committee members for their constant feedback and intense review to bring out the bulletin in this precise format.

It is expected that this bulletin would be highly beneficial to all of our valued stakeholders including customers, food processors, export import personnel and distributors as well as policy makers, academia, NGOs and INGOs. Your valuable suggestions, comments and feedbacks are highly instrumental to improve the quality of the bulletin in the days to come.

.....
Sanjay Bhandari
Section Chief

Coordinator and Senior Food Research Officer Planning,
Monitoring and Evaluation Section, DFTQC
Babarmahal, Kathmandu

List of Abbreviations

Abbreviations	Full form
GoN	Government of Nepal
MOALD	Ministry of Agriculture and Livestock Development
DFTQC	Department of Food Technology and Quality Control
FFRL	National Food and Feed Reference Laboratory
FTDND	Food Technology Development and Nutrition Division
FSSQRD	Food and Feed Safety and Quality Regulation Division
FTQCO	Food Technology and Quality Control Office
FIEQCO	Food Import Export and Quality Certification Office
FTQCDO	Food Technology and Quality Control Division Office
NABL	National Accreditation Board for Testing and Calibration Laboratories
FSSAI	Food Safety and Standards Authority of India
WTO	World Trade Organization
SPS	Sanitary and phytosanitary
INFOSAN	International Food Safety Authorities Network
RBPR	Rapid Bioassay for Pesticide Residues
R&D	Research and Development

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Executive Summary

In the fiscal year 2078/79 B.S. (2021/22 A.D.), Department of Food Technology and Quality Control has accomplished the following targets as per the approved annual program:

- In the fiscal year 2078/79, food/feed market and food/feed industries were inspected 2,631 and 4,042 times respectively. Hotel/Restaurant and sweets shop inspection was conducted 1706 times. Joint monitoring as per the Rapid Response Team Modality including representatives of local authority and other stakeholders was done 684 times. In total, inspection was done 9,063 times throughout the country.*
- In this fiscal year, a total of 4,660 food and feed samples were collected as per the Food and Feed Acts during market inspection across the country from the Food and Feed Safety and Quality Regulation Division under this department, eight Food Technology and Quality Control Offices and 22 Food Technology and Quality Control Division Offices. Among 4,127 samples analyzed, 228 samples were found to be non-compliance as per mandatory standard, which was 5.43 % of total analyzed samples.*
- In this year, 115 cases were filed against the business operators, who had violated the provisions of Food/Feed acts, regulations and mandatory standards at the respective District Administration Offices/District Courts.*
- A total number of 20,475 food/feed samples were analyzed for various purposes at the laboratory facilities within the department and offices under this department.*
- In this fiscal year, altogether 16,145 import permits were issued while 126 were rejected, and a total number of 51,767 samples were analyzed for export/import certification in the 12 Food Import Export Quality Certification Offices located at different custom points. Among them, 45 samples did not meet the conditions for export/import.*
- A total number of 56,338 samples of fresh fruits and vegetables were analyzed for pesticide residues (Organophosphates and organochlorines) using Rapid Bio-assay for Pesticide Residue (RBPR) method among which 51 samples exceeded the maximum residue limit.*

- *A total number of 1,776 licenses of food/feed industries were renewed, 823 new licenses were issued and 1,919 industries were recommended for registration.*
- *A total number of 636 hotel/restaurants were categorized as per Directives on categorization of hotels / restaurants including food business based on food safety standards (2074). Among them 17 fell in the category very good, 103 good, 238 satisfactory and 186 average. Remaining 92 hotels, which did not meet the basic requirements, were instructed for further improvement as per the guidelines.*
- *Three trial studies were conducted to quantify the amylose content in different rice varieties of Nepal. Three nutritious food recipes based on locally available raw materials (Composite litti, Nutritious Tikki and Millet flour incorporated chicken mo:mo) were developed and studied. Furthermore, on site survey of Chhurpi manufacturing industries and nutritional composition of Nepalese snack foods were also conducted.*
- *Altogether 105 food safety related programs were conducted, which covered a wide range of food and nutrition topics. The participants were mostly agro business entrepreneurs, local representative and other related stakeholders.*
- *Skill development trainings on food processing was given to 48 people.*
- *A total number of 197 food samples were analyzed for nutritional composition.*
- *A total amount of NRs. 80,591,000 (NRs. Eighty million five hundred Ninety one thousand) was collected as non-tax revenue by providing different services, mainly laboratory testing services and food licensing from the department and the offices under this department.*

A. Introduction

Background

Department of Food Technology and Quality Control (DFTQC) is one of the three departments under the Ministry of Agriculture and Livestock Development (MoALD) of Government of Nepal (GoN). It was established in 1961 A.D. as the Department of Food in Singhdurbar, which later in 1965 was shifted to the present location of Babarmahal, Kathmandu. In 1966, the name Department of Food was renamed as Food Research Laboratory. It became Central Food Research Laboratory in 1980. In the year 2000, the Central Food Research Laboratory was given the name “Department of Food Technology and Quality Control (DFTQC)” and became the third department under the then Ministry of Agriculture and Cooperatives. From the very beginning, DFTQC has devoted its efforts for ensuring the availability of safe, quality and nutritious food to Nepalese people through a number of activities in the area of food quality control, development and dissemination of food processing technologies as well as food and nutrition programs. As mandated by the Government of Nepal, DFTQC is the sole government agency to execute the food and feed acts and regulations in the country.

Vision

Create environment for availability of wholesome, safe and nutritious food to all Nepali citizens and facilitate food trade.

Mission

- Safeguard and protect the health of consumers by assuring the availability of safe and nutritious food with the creation of awareness among producers, traders as well as consumers and facilitate food trade in a coordinated and collaborative approach based on scientific evidence with the updated regulatory framework.
- Promote food businesses by developing appropriate food processing technology through R & D and disseminating and adopting the outcome of research for the development of food processing enterprises.
- Promote nutritional status of people through the development of food based nutritional approaches.

Goal

DFTQC has the following three major goals:

- Ensure the safety and quality of food supply in the market
- Promote food processing industries by developing and disseminating appropriate technologies
- Improve the nutritional status of Nepalese people

Objectives

The following are the main objectives of the department:

- Reduce the incidence of hazards (adulteration) related to food/feed
- Facilitate the national/international trade related to food and agriculture
- Reduce the post harvest loss through the development and dissemination of appropriate processing/preservation technologies
- Promote the establishment of small scale food industries
- Improve the knowledge, attitude and practice of consumers on food safety, quality and nutrition
- Improve the food consumption status of Nepalese people in general and of vulnerable groups and communities.

Human Resource

DFTQC has a total number of 340 staffs including experts having advanced education from local as well as foreign universities in the field of food technology, nutrition, chemistry, botany and other relevant subjects.

Organizational Structure

Under the department, there are currently the following offices.

- Two divisions (Food and Feed Safety and Quality Regulation Division and Food Technology Development and Nutrition Division),
- One National Food and Feed Reference Laboratory,
- One SPS National Enquiry Point,
- One Codex and Infosan Secretariat,
- Eight Food Technology and Quality Control Offices (Biratnagar, Janakpur, Hetauda, Pokhara, Bhairahawa, Nepalgunj, Surkhet and Dhangadhi),
- Twelve Food Import Export Quality Certification Offices (Kakarbhitta, Rani, Jaleshwar, Birgunj, Tribhuvan International Airport, Belahiya, Krishnanagar, Nepalgunj, Dhangadhi, Mahendranagar, Rasuwaand Tatopani),
- Twenty-two Food Technology and Quality Control Division Offices (Jhapa, Sunsari, Dhankuta, Udayapur, Saptari, Mahottari, Sarlahi, Chitwan, Parsa, Sindhuli, Dhulikhel, Kathmandu, Nuwakot, Tanahun, Kapilvastu, Palpa, Baglung, Dang, Jumla, Baitadi, Doti and Dadeldhura).

The existing structural network of the department is as shown in the figure:

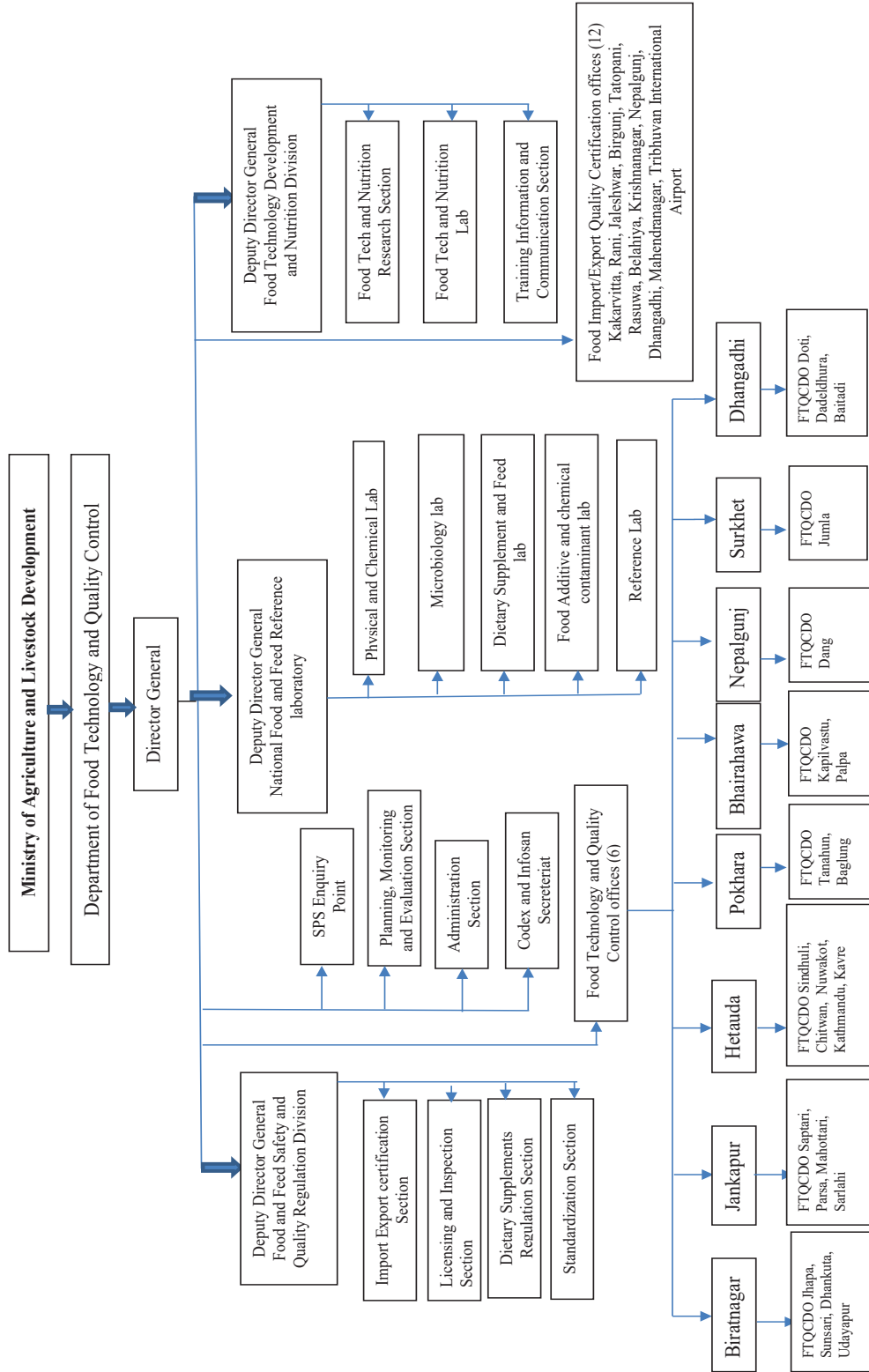


Figure: Organizational structure of Department of Food Technology and Quality Control

B. Annual Progress Report

Fiscal Year 2078/79 (2021/22)

1. Food Quality Control Program

Department of Food Technology and Quality Control has implemented following major programs in this fiscal year as an effort of enforcing food safety and quality control as well as consumer awareness. The main programs were as follows:

1. Food/feed inspection and food/feed sample collection
2. Food/feed industry licensing
3. Development of new food standard and updating the standard
4. Consumer awareness campaign
5. Export/import certification
6. Dietary food supplement regulation

1.1. Market, Industry, Hotels, Restaurants, and Sweet Shops Inspection program

During this period, Food and Feed Safety and Regulation Division (Central), Food Technology and Quality Control Offices (8) and Food Technology and Quality Control Division offices (22) have inspected food/feed markets, industries, hotel/restaurants and sweets shops. In this fiscal year, food/feed market inspection, industry inspection, hotel / restaurant / sweet shops inspection and rapid response modality inspection in coordination with different related agencies were done 2631, 4042, 1706 and 684 times respectively throughout the country with the aim to maintain food safety and quality.

Details on food/feed market inspection, industry, hotel/restaurants/sweets shops and joint monitoring (rapid response) is shown in the Table 1.0 and Table 1.1.

Table 1.0: Summary of Market, Industry, Hotel/Restaurant and Sweet Shops inspection

S.N.	Office	Market Inspection	Industries Inspection	Hotel/ Restaurant	Rapid Response	Total
1	DFTQC, Kathmandu	140	420	147	65	772
2	FTQCO, Biratnagar	73	233	66	83	455
3	FTQCO, Janakpur	63	211	54	27	355
4	FTQCO, Hetauda	60	299	41	18	418
5	FTQCO, Pokhara	56	191	52	28	327
6	FTQCO, Bhairahawa	64	195	52	20	331
7	FTQCO, Nepalgunj	86	279	70	18	453
8	FTQCO, Surkhet	141	110	53	31	335
9	FTQCO, Dhangadhi	110	479	24	12	625
10	22 FTQCDOs	1838	1625	1147	382	4992
	Total	2631	4042	1706	684	9063

Table 1.1: Market, Industry, Hotel/Restaurant and Sweet Shops inspection conducted by division offices

S.N.	Office	Market Inspection	Industry Inspection	Hotel/ Restaurant	Rapid Response	Total
1	FTQCDO, Jhapa	67	111	56	23	257
2	FTQCDO, Sunsari	73	158	42	19	292
3	FTQCDO, Dhankuta	80	81	52	23	236
4	FTQCDO, Udayapur	56	50	40	12	158
5	FTQCDO, Saptari	84	80	44	18	226
6	FTQCDO, Mahottari	66	47	37	16	166
7	FTQCDO, Sarlahi	80	60	40	19	199
8	FTQCDO, Parsa	80	60	40	19	199
9	FTQCDO, Bharatpur	100	123	48	16	287
10	FTQCDO, Sindhuli	81	54	60	13	208
11	FTQCDO, Dhulikhel	42	71	31	16	160
12	FTQCDO, Kathmandu	70	108	40	24	242
13	FTQCDO, Nuwakot	73	34	60	10	177
14	FTQCDO, Tanahun	174	145	119	28	466

15	FTQCDO, Baglung	76	61	40	14	191
16	FTQCDO, Palpa	117	53	114	12	296
17	FTQCDO, Kapilbastu	78	46	40	16	180
18	FTQCDO, Dang	141	142	40	21	344
19	FTQCDO, Jumla	72	30	28	8	138
20	FTQCDO, Doti	80	49	46	13	188
21	FTQCDO, Baitadi	75	26	50	22	173
22	FTQCDO, Dadeldhura	73	36	80	20	209
	Total	1838	1625	1147	382	4992

1.1.1 Industry Inspection

Altogether 4042 food and feed industries were inspected by focusing on:

- Industry licensing and renewing
- Product packaging and labeling
- Premises and surrounding environment of industry
- Processing technology and processing flow chart
- Production plant condition
- Ingredients and additives used
- Storage condition of raw and finished products
- Good Manufacturing Practices and Good Hygienic Practices

Necessary suggestion for improvement in safety and quality product was given to owners and technical personnels. Figure 1.0 shows the trend of industry inspection carried out since the fiscal year 069/70 until 078/79.

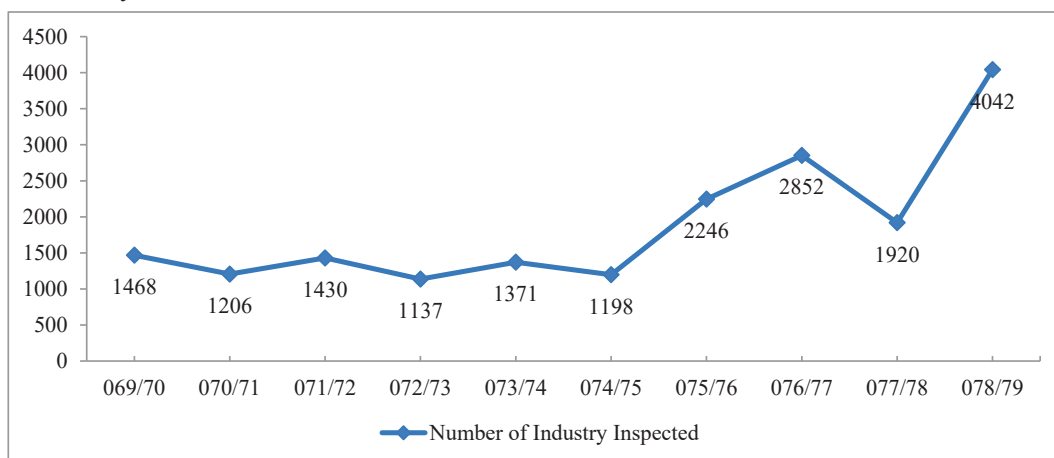


Figure 1.0: Trend line showing number of Industries Inspected (069/70-078/79)

From the above figure 1.0 it can be seen that the number of industries inspected were somewhat similar up to fiscal year 2074/75. After the establishment of division offices in the year 2075, the number of industries inspected increased gradually. In the fiscal year 2077/78 a decrease in the number of industries inspected, which can be attributed to the impact of COVID-19 pandemic. However, in the following fiscal year 2078/79, there was substantial increase, likely due to reopening of industries after the pandemic.

1.1.2 Hotel/Restaurant and Sweets Shop Inspection

In this fiscal year 2078/79, different hotel/restaurants and sweet shops were inspected 1706 times in total throughout the country. Figure 1.1 shows the number of hotels / restaurants / sweet shops inspection conducted by food and feed safety and regulation division, food technology and quality control offices and division offices for past 10 fiscal years.



Figure 1.1: Trend line showing the number of hotels, restaurants and sweet shops inspected

Figure 1.1 shows that the number of hotels/ restaurants and sweets shops inspected increased drastically in fiscal year 2073/74 compared to the previous years. The number then decreased slightly in fiscal year 2074/75 but again increased up to 2076/77. This might be due to the focus of 14th periodic plan in hotels and restaurants. Due to the COVID-19 pandemic and subsequent lockdown, there was a significant decrease in the number of hotel restaurants inspected, with only being 1,523 inspected. However in the fiscal year 2078/79 the hotel restaurant inspection slightly increased as compare to the previous fiscal year. This slight increase was due to normalization after the COVID-19 pandemic, as lockdown restrictions were eased, hotel/restaurant started reopening.

1.2 Sample collection (As per food/feed act and surveillance)

During this period, Food and Feed Safety and Quality Regulation Division (FFSQRD), Eight Food technology and Quality Control Offices (FTQCOs) and twenty-two Food Technology and Quality Control Division Offices (FTQCDOs) collected 4,230 food and

430 feed samples with total 4,660 samples under the food/feed act. In this fiscal year, total 871 surveillance samples were collected. Among them 190 samples were collected from FFSQRD of DFTQC and 681 samples were collected from 22 FTQCDOs. Summary of the formal food/feed samples collected by various offices are reflected in the Table 1.2 and 1.3.

Table1.2: Summary of Sample Collection (as per food/feed act)

S.N.	Office	Number of samples as per act		
		Food	Feed	Total
1	FFSQRD, DFTQC	136	18	154
2	FTQCO, Biratnagar	132	32	164
3	FTQCO, Janankpur	120	22	142
4	FTQCO, Hetauda	58	6	64
5	FTQCO, Pokhara	150	12	162
6	FTQCO, Bhairahawa	98	20	118
7	FTQCO, Nepalgunj	82	20	102
8	FTQCO Surkhet	167	13	180
9	FTQCO, Dhangadhi	81	17	98
10	22 FTQCDOs	3206	270	3476
	Total	4230	430	4660

Table 1.3: Summary of Sample Collection (as per food/feed act and surveillance) by Division Offices

S.N.	Office	Number of samples as per act			Number of Surveillance Sample
		Food	Feed	Total	
1	FTQCDO, Jhapa	70	13	83	12
2	FTQCDO, Sunsari	165	15	180	30
3	FTQCDO, Dhankuta	158	10	168	35
4	FTQCDO,Udayapur	100	8	108	22
5	FTQCDO, Saptari	164	15	179	25
6	FTQCDO, Mahottari	162	15	177	24
7	FTQCDO, Sarlahi	160	15	175	25
8	FTQCDO, Parsa	151	25	176	29
9	FTQCDO, Bharatpur	140	48	188	12
10	FTQCDO,Sindhuli	160	6	166	33

11	FTQCDO,Dhulikhel	120	7	127	64
12	FTQCDO, Kathmandu	136	0	136	34
13	FTQCDO, Nuwakot	160	16	176	35
14	FTQCDO,Tanahun	177	13	190	59
15	FTQCDO, Baglung	140	11	151	25
16	FTQCDO, Palpa	160	15	175	25
17	FTQCDO, Kapilbastu	100	5	105	32
18	FTQCDO, Dang	160	17	177	44
19	FTQCDO, Jumla	160	0	160	20
20	FTQCDO, Doti	162	0	162	38
21	FTQCDO, Baitadi	160	8	168	34
22	FTQCDO, Dadeldhura	141	8	149	24
	Total	3206	270	3476	681

Figure 1.2 shows the number of food and feed samples (as per Act) collected throughout the country for the past four fiscal years. The number of formal food samples increased in fiscal year 2076/77 compared to the fiscal year 2075/76. There was decrease in the collection of total number of formal samples in the fiscal year 2077/78 compared to previous two fiscal years. This might be due to the effect of worldwide Covid-19 pandemic. The number of formal samples increased rapidly in the fiscal year 2078/79 since the risk of Covid-19 reduced.

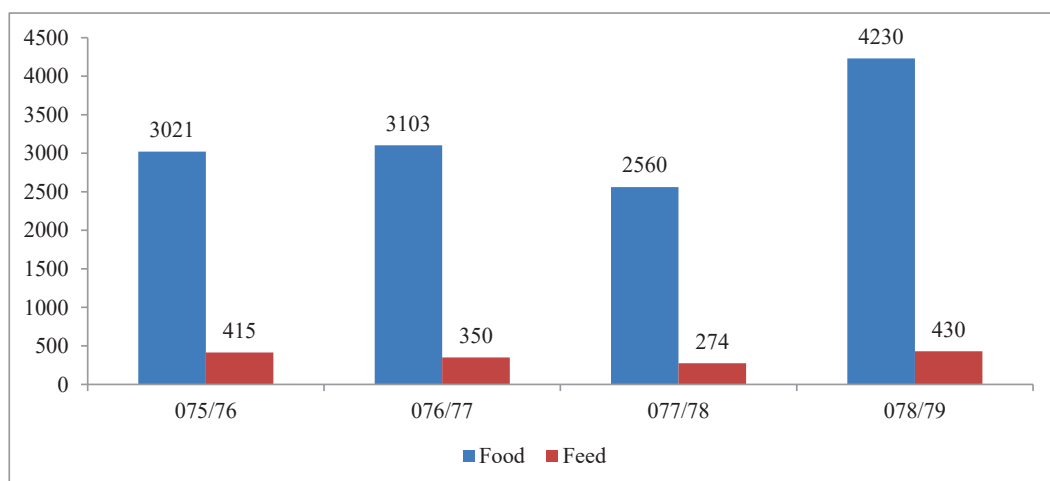


Figure 1.2: Food and feed sample collection (as per Food/Feed Act) data of past four fiscal years

During the fiscal year 2078/79, laboratory analysis of food and feed samples was conducted by National Food and Feed Reference Laboratory (NFFRL) and six Food technology and Quality Control Offices. Newly upgraded FTQCO, Pokhara and Surkhet completed the laboratory set up process during this period. In total, NFFRL and six FTQCOs have analyzed 4,127 formal food and feed samples, of which 224 were non-compliance samples (5.43%). Altogether 115 cases were filed by different offices under the department during this period. Table 1.4 shows the number of samples analyzed, number of non-compliance samples and the number of cases filed under different food category and Table 1.5 shows the number of cases filed by different offices during fiscal year 2078/79. FTQCO, Dhangadhi filed the highest number of cases in this period. Most of the cases filed belonged to the category of cereals, legumes and their products followed by milk and milk products.

Table 1.4: Number of sample analyzed as per act and cases filed during the FY 2078/79

S.N.	Food Groups	Samples Analyzed	Number of non-compliance samples	Cases filed*
1	Milk and Milk Products	110	15	19
2	Fats and Oils	546	14	2
3	Fruits and Vegetable Products	519	61	6
4	Spices	379	8	5
5	Tea and coffee	213	13	8
6	Salt	53	0	0
7	Cereals, legumes and their products	1314	54	30
8	Processed Drinking Water	189	30	14
9	Sweetening Agents	142	4	3
10	Sweets and Confectionery	102	0	0
11	Meat and meat products	27	1	0
12	Feed	307	17	18
13	Other food products	226	11	10
Total		4127	228	115

Note: * Case filed of previous year's non-compliance samples also included.

Table 1.5: No. of Cases Filed by Offices

S.N.	Office	No. of case filed
1	DFTQC, Kathmandu	13
2	FTQCO, Biratnagar	9
3	FTQCO, Janakpur	0
4	FTQCO, Hetauda	8
5	FTQCO, Pokhara	0
6	FTQCO, Bhairahawa	12
7	FTQCO, Nepalgunj	0
8	FTQCO, Surkhet	0
9	FTQCO, Dhangadhi	27
10	FTQCDO, Jhapa	5
11	FTQCDO, Sunsari	2
12	FTQCDO, Dhankuta	0
13	FTQCDO, Udayapur	0
14	FTQCDO, Saptari	0
15	FTQCDO, Mahottari	0
16	FTQCDO, Sarlahi	4
17	FTQCDO, Parsa	1
18	FTQCDO, Bharatpur	7
19	FTQCDO, Sindhuli	0
20	FTQCDO, Dhulikhel	4
21	FTQCDO, Nuwakot	1
22	FTQCDO, Kathmandu	8
23	FTQCDO, Tanahun	7
24	FTQCDO, Baglung	1
25	FTQCDO, Kapilbastu	0
26	FTQCDO, Palpa	3
27	FTQCDO, Dang	1
28	FTQCDO, Jumla	0
29	FTQCDO, Baitadi	0
30	FTQCDO, Doti	0
31	FTQCDO, Dadeldhura	2
	Total	115

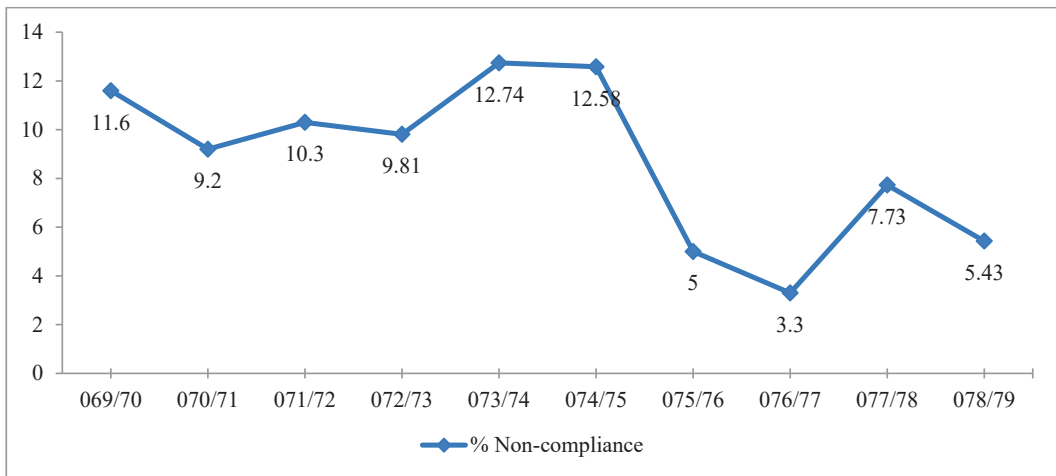


Figure 1.3: Percentage non compliance of food/feed samples (069/70-078/79)

Figure 1.3 presents the non-compliance percentage in food and feed samples since last 10 fiscal years. From above figure there was a significant improvement with a consistent decline in non-compliance percentage. The decrease in non-compliance percentage is may be due to establishment of division of in fiscal year 2075/76, regular market inspection, inspection via rapid response modality and awareness programs organized by DFTQC to the consumer and stakeholders.

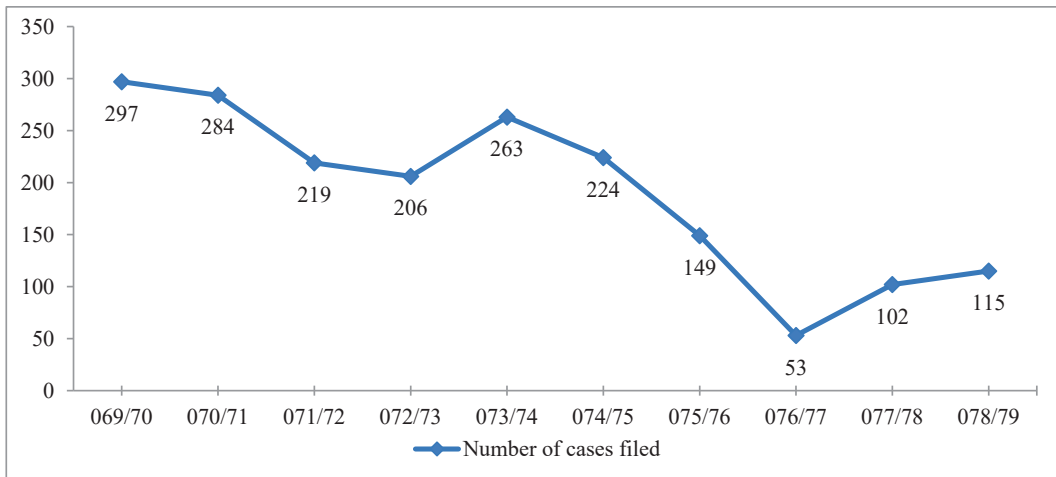


Figure 1.4: Trend line showing number of cases filed (069/70-078/79)

Figure 1.4 presents the trend of number of cases filed over the past 10 years. The cases were filed at the district administrative office and at the district court to those violating the Food /Feed Act and Food/Feed Regulations. From above figure the number of cases filed increased since fiscal year 076/77 to 078/79 as action against non-compliance samples were taken in primary priority list.

1.3 Food and Feed Industry Licensing

All food/feed industries must acquire license issued via DFTQC as per Food and Feed Act. The issued license needs to be renewed annually. Altogether 823 new licenses were issued and 1,776 licenses were renewed whereas 1,919 new industries have been recommended during this fiscal year. Table 1.6 shows the details on the status of licensing and recommendation of food /feed industries throughout the country in this fiscal year.

Table 1.6: Summary of Licensing and Recommendation of Food/Feed Industries

S.N.	Office	New License Issued (No.)	License Renewal (No.)	Industry Recommendation (No.)	Total (No.)
1	DFTQC, Kathmandu	219	513	473	1205
2	FTQCO, Biratnagar	176	305	359	840
3	FTQCO, Janakpur	102	326	298	726
4	FTQCO, Hetauda	29	104	78	211
5	FTQCO, Pokhara	0	0	98	98
6	FTQCO, Bhairahawa	80	106	317	503
7	FTQCO, Nepalgunj	141	201	151	493
8	FTQCO, Surkhet	0	0	9	9
9	FTQCO, Dhangadhi	76	221	136	433
Total		823	1776	1919	4518

The trend of food/feed industry licensing (new issue and renewal) for past 10 fiscal years is shown in Figure 1.5.

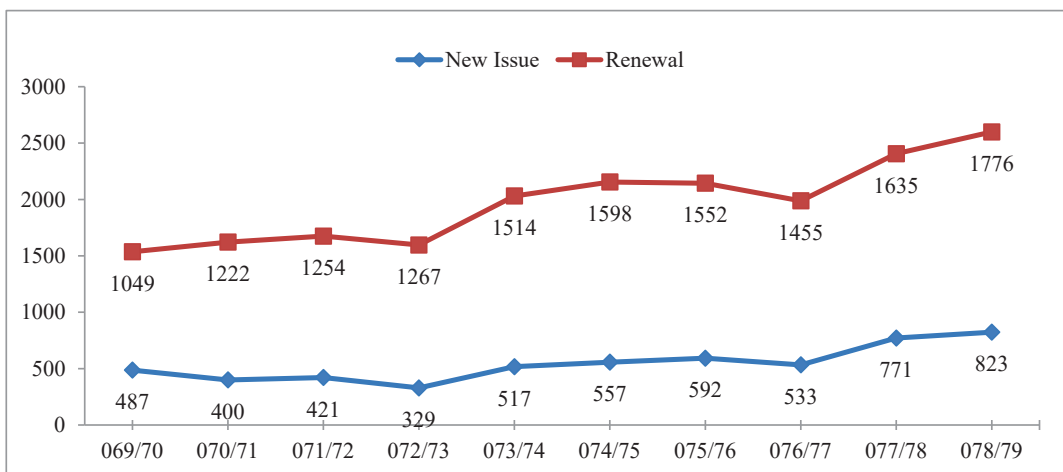


Figure 1.5 Trend of past 10 years food/feed industry licensing (New Issue and Renewal)

Figure 1.5 shows that the number of industries getting new license and renewal is increasing. This might be due to active inspection, continuous consultancy service and increased awareness of agro-business operators about the provision of food/feed industry licensing according to Food and Feed law. Table 1.7 shows the summary of license new issue, renewal and recommendation given to different category of food products.

Table 1.7: Summary of license new issue, renewal and recommendation according to food group (FY 2078/79)

S.N.	Category	New Issue	Renewal	Recommendation	Total
1	Milk and Milk Products	52	140	233	425
2	Fats and Oils	20	94	29	143
3	Fruits and Vegetable Products	68	116	179	363
4	Spices	81	148	226	455
5	Tea and coffee	73	98	112	283
6	Salt	0	1	0	1
7	Cereals, legumes and their products	350	702	827	1879
8	Processed Drinking Water	47	228	59	334
9	Sweetening Agents	23	67	42	132
10	Sweets and Confectionery	37	34	68	139
11	Meat and meat products	14	27	33	74
12	Feed	15	47	8	70
13	Other food products	43	74	103	220
Total		823	1776	1919	4518

1.4 Food Export Import Inspection and Certification

Food and Feed Safety and Quality Regulation Division, DFTQC, Kathmandu issued altogether 16,145 food import permits while 126 food import permit request were rejected as they did not meet the import criteria. Such permit is issued only from Department and export/import certification is provided at the Custom points. In this fiscal year, a total number of 51,767 samples were analyzed for export/import certification from 12 FIEQCOs. The number of samples analyzed for food import/export inspection and certification by different FIEQCOs under DFTQC is shown in Table 1.7.

Table 1.7: Samples analyzed for Import/Export Inspection and Certification

S.N.	Office	Number of Samples	Rejection
1	FIEQCO, Kakarvitta	1075	0
2	FIEQCO, Rani	7266	0
3	FIEQCO, Jaleswar	2001	0
4	FIEQCO, Birgunj	14549	5
5	FIEQCO, Tatopani	8	0
6	FIEQCO, Rasuwa	365	0
7	FIEQCO, Belahiya	10257	23
8	FIEQCO, Krishnanagar	4436	0
9	FIEQCO, Nepalganj	7395	4
10	FIEQCO, Dhangadhi	3887	12
11	FIEQCO, Mahendranagar	257	1
12	FIEQCO, TIA	271	0
	Total	51767	45

1.5 Rapid Bioassay for Pesticide Residue (RBPR)

Pesticide residue analysis of imported fresh fruits and vegetables at different custom point was started in this fiscal year as directed by Ministry of Agriculture and Livestock Development. For this purpose, the responsibility was assigned to four Food Import Export Quality Certification Offices: Kakarvitta, Rani, Jaleswar, Birgunj, and three Food Technology and Quality Control Office; Bhairahawa, Nepalgunj and Dhangadhi.

A total number of 56,338 samples of fresh fruits and vegetables were analyzed for testing pesticide residues (Organophosphates and organochlorines) using RBPR method, out of which, 51 samples were found substandard. Table 1.8 shows the number of imported fresh fruits and vegetables samples analyzed by different Food Import Export Quality Certification Office for pesticide residue in this fiscal year.

Table1.8- Summary of number of fresh fruits and vegetable samples analysed at custom offices for pesticide residue by RBPR method

Office	Sample	Sub standard
FIEQCO, Kakarvitta	4943	16
FIEQCO, Rani	2794	0
FIEQCO, Jaleswor	3049	0
FIEQCO, Birgunj	1212	0
FIEQCO, Bhairahawa	29040	33
FIEQCO, Nepalgunj	10220	2
FIEQCO, Dhanghadi	5080	0
Total	56338	51

1.6 Hotels/Restaurants Inspection and Categorization

In this fiscal year, 636 hotels and restaurants were inspected for categorization. Inspected hotel/restaurants were provided different stickers according to their grades based on food safety criteria. Among them 17 were very good, 103 were good, 238 were satisfactory and 186 were average. Remaining 92 hotels/restaurants were below average and they were instructed for further improvement. It can be observed that most of the hotel/restaurants fall under satisfactory category. This indicates that the food safety status needs to be improved in coming days.

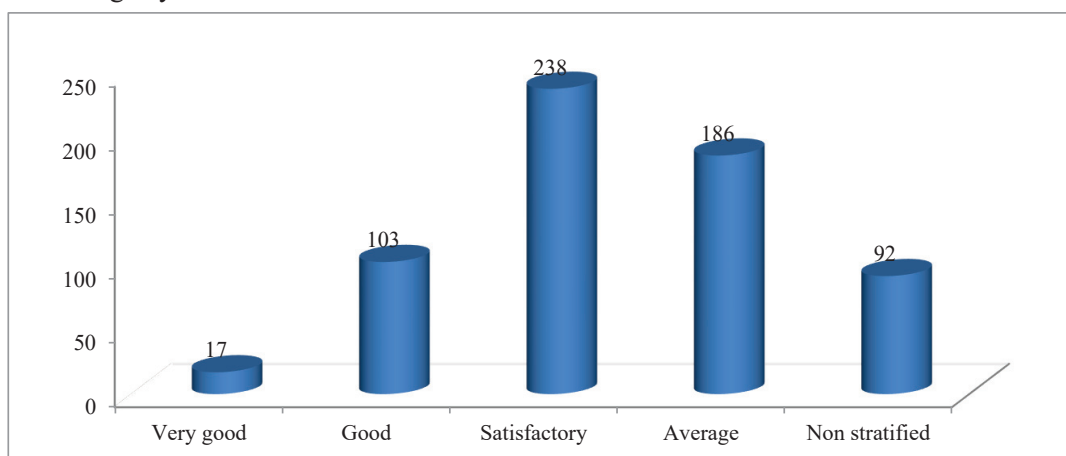


Figure 1.6 Hotel/Restaurant categorization

1.7 Dietary Supplement Registration and Renewal

Food and Feed Safety and Quality Regulation Division carried out the dietary supplement registration and renewal of registered products as a part of dietary supplement regulation.

In this fiscal year, 794 dietary supplements were registered whereas 896 were renewed as per the guidelines on regulation of dietary supplements.

1.8 Food and Feed Standardization

DFTQC has been conducting food standardization program every year in order to regulate quality and safety of food products as per Food Act 2023, Food regulation 2027 and Feed Act 2033 and Feed regulation 2041. In the fiscal year 2078/79, mandatory standards for Maximum Residue Limit of Heavy Metals in different food products and standard for cereal based infant supplementary food were approved by Food Standardization Committee and submitted to Ministry of Agriculture and Livestock Development (MoALD) for WTO notification. Maximum residue limit of pesticide in fruits and vegetables were approved from Food Standardization Committee. Furthermore, the standard for poultry feed was approved by Feed Standardization Committee in this fiscal year.

1.9 Food Safety and Quality Awareness Programs

In the fiscal year 2078/79, following awareness related interaction programs related to food safety, hygiene and quality assurance was conducted by Department of Food Technology and Quality Control and its offices:

- Food safety and quality interaction programs were conducted 105 times, among which 95 interaction programs were done with food and feed business operators and 10 interaction programs with hotel homestay business operators.
- Food safety and quality related interaction programs were conducted 42 times with different local level representatives.
- School level awareness program related to food safety, hygiene and nutrition was conducted in 48 different schools.
- Awareness programs related to food safety and hygiene were conducted in 49 different places to improve the quality and hygiene of food items sold in street market.

2. Laboratory Analysis of Food/Feed

2.1 Analysis of Food/Feed

National Food and Feed Reference Laboratory, DFTQC and food laboratories at Food Technology and Quality Control Offices perform analysis of food/feed for various purposes such as:

- 1) Compliance of Food and Feed Act/Regulation
- 2) Standardization
- 3) Licensing (Issue and renewal)
- 4) Certification

- 5) Requested and complaint samples
- 6) Others

Laboratory analysis conducted by different offices is shown in the Table 2.0.

Table 2.0: Summary of Laboratory Analysis by different offices

S.N.	Office	Laboratory Analysis (No.)
1	NFFRL, Kathmandu	5246
2	FTQCO, Biratnagar	3903
3	FTQCO, Janakpur	3226
4	FTQCO, Hetauda	2120
5	FTQCO, Bhairahawa	1902
6	FTQCO, Nepalgunj	2255
7	FTQCO, Dhangadhi	1823
	Total	20475

In this fiscal year 2078/79 laboratory analysis service were provides by NFFRL-DFTQC and six offices (FTQCO-Biratnagar, FTQCO-Janakpur, FTQCO-Hetauda, FTQCO-Bhairahawa, FTQCO-Nepalgunj and FTQCO-Dhangadhi). In this period FTQCO, Pokhara and Surkhet were upgraded and established for laboratory service. In total 20475 samples were received as formal, surveillance, licensing, requested and other purpose were analyzed for different parameter. Table 2.1 shows the summary of objective wise sample analyzed from different offices.

Table 2.1: Objective wise sample analysis

Sample/ Office	Formal Sample		Surveillance sample		Licensing Sample		Requested Sample		Others	
	Analyzed sample	Non - compliance	Analyzed sample	Non - compliance	Analyzed sample	Non - compliance	Analyzed sample	Non - compliance	Analyzed sample	Non - compliance
NFFRL, Kathmandu	1181	91	304	13	1867	88	1673	104	221	3
FTQCO, Biratnagar	603	25	133	1	1577	82	1524	11	60	0
FTQCO, Janakpur	653	18	138	0	1475	32	961	9	0	0
FTQCO, Hetauda	170	23	0	0	1820	60	137	13	0	0
FTQCO, Bhairahawa	505	20	54	4	1128	32	215	7	0	0
FTQCO, Nepalgunj	446	10	162	5	1259	20	388	25	0	0
FTQCO, Dhangadhi	569	41	159	2	1042	63	51	3	2	0
Total	4127	228	950	25	10168	377	4949	172	283	3

The trend of food and feed sample analysis conducted by laboratories under DFTQC (except import/export certification) for past five years is shown in the Figure 2.0.

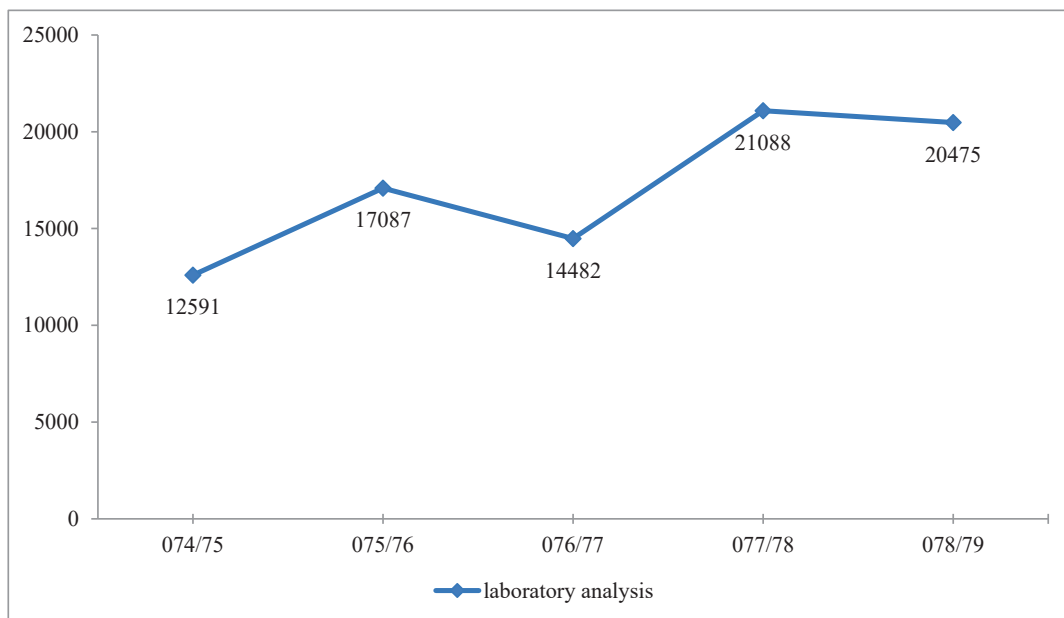


Figure 2.0 Laboratory analyses for past 5 years

Figure 2.0 shows that the number of sample analysis conducted by laboratories is in increasing trend. This might be due to active inspection, increasing number of industries, increased awareness of agro-business operators about the provisions in food and feed laws.

2.2 Laboratory Analysis service for Export Promotion

Department's National Food and Feed Reference Laboratory has been providing the laboratory analysis service for export promotion. In fiscal year 2078/79, 145 samples were analyzed for this purpose. Table 2.2 shows the summary of laboratory analysis service for trade promotion.

2.2 Laboratory analysis services in Trade Promotion

S.N.	Analyzed food commodities	Samples	Qty (MT)	Export to
1	Milk products (esp. <i>Chhurpi</i>)	90	108.05	USA, AUS, UK, Thailand
2	Fruits and Vegetables & its products	8	4.85	Japan
3	Spices and condiments	3	5	Thailand
4	Cereals, legumes and its products (millet & buckwheat flour, beaten rice, corn grits etc.)	24	17.7	USA
5	Tea and Coffee	4	1.15	Japan
6	Honey	12	7.5	USA, Europe, Japan,
7	Miscellaneous (buffalo horn, raw hide etc.)	4	4.2	USA
Total Sample Analyzed		145	148.45	

*Information provided by exporters

2.3 Progress on Laboratory Accreditation

National Food and Feed Reference Laboratory (NFFRL) was accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL), India. Till date, NFFRL has been accredited in total 101 parameters (77 chemical parameters and 24 microbiological parameters). Details on existing scope of accreditation of NFFRL (chemical and microbiological) is given in Annex 1. In this fiscal year, NFFRL has applied for scope extension of additional 164 chemical and 16 microbiological parameter to NABL, India. Food technology and quality control office Biratnagar has given application to NABL, India for accreditation (23 parameters of 7 commodities including tea and spices).

2.4 Method Validation

2.4.1 Determination of Deoxynivalenol in Wheat and Maize by Modified QuEChERS Followed by LCMS Analysis

Deoxynivalenol (DON) is a trichothecene mycotoxin produced by *Fusarium* species fungi, which often contaminates wheat, barley and maize (corn) grown in cool and moist conditions. These crops and their commercial products are often contaminated with DON. It is known as immunosuppressant and may cause kidney problems. Consumption of DON contaminated grain can cause vomiting in humans and animals and hence it is also called as Vomitoxin. Due to potential health effects caused by DON-contaminated food products, many countries have established regulations to protect consumers from the harmful effects of its intake. Thus, it is required to monitor the level of its content in food and grains.

By considering its importance of routine monitoring, National Food and Feed Reference Laboratory, DFTQC, successfully validated a liquid chromatography with mass detection (LCMS) based method. Deoxynivalenol was extracted from flour/maize by using modified QuEChERS (Quick, Easy, Cheap, Effective, Rugged and Safe) extraction protocol. Briefly, sample was hydrated with water and then extracted with acetonitrile followed by clean up with dispersive solid phase extraction using primary secondary amine and anhydrous magnesium sulfate. The final extract was diluted with water and injected to LCMS system. The concentration of DON in sample was calculated from matrix matched calibration curve. Method validation was performed as per standard guidelines (EURACHEM/ICH) and method was found fit for intended purpose of routine analysis. The LOQ (limit of quantification) of the method was found to be 100 ug/kg. The Validated method was tested for FAPAS QC sample and the result was found in the acceptable range. Similarly, 10 samples of maize and wheat were analyzed, however, none of the sample was found to contain higher than 100 ug/kg of deoxynivalenol.

During Cholera outbreak in Kathmandu in June/July 2022 (Asad 2079), total 66 samples of drinking water were analyzed for Coliform, Fecal coliform and *E. coli*. Among 66 samples, 40 samples were coliform positive.

2.4.2 Determination of Rhodamine B in Cotton Candy by High-Performance Liquid Chromatography Equipped with Fluorescence and Mass Spectrometry Detection

Rhodamine B is a synthetic dye commonly used in textile industries. It has bright pink color and banned by many countries to be used in food due to harmful health effects. However, it is still used illegally in some foods, especially in cotton candy to impart bright pink color that do not fade away easily. Cotton candy, commonly found in pink color was tested for Rhodamine B by qualitative test. However, it is often difficult to interpret the results with

confidence and there are high chances of false positives or false negative results. Thus, a simple and fast method is desirable to detect rhodamine B in sample.

Due to presence of conjugated long aromatic rings, it shows the fluorescence activity. Hence, HPLC with fluorescence detector followed by MS detector was used to detect rhodamine B qualitatively and quantitatively. Rhodamine B was extracted from sample with water then acetonitrile was added followed by addition of magnesium sulfate (anhydrous) and sodium acetate. Rhodamine B was transferred from water layer to acetonitrile layer, which was diluted and injected to HPLC-RF-MS system. The method was validated as per standard method validation guidelines and validation parameters are found within the limit. This method is very sensitive as the instrument can detect up to 2 µg/L of rhodamine B. Mass detector adds more confidence in the detection as protonated rhodamine B of m/z value 443.2 gave a prominent base peak in mass spectra. The validated method was tested for analysis of five cotton candy samples (4 pink colored and one white colored samples). The white colored cotton candy sample did not contain rhodamine B while other four samples were found to contain rhodamine B in the range of 109-488 mg/kg.

3. Food Technology Development and Nutrition program

In the fiscal year 2078/79, following were the approved programs:

- 1) Drafting of Guidelines on nutritional labelling
- 2) Training on food processing Technology
- 3) Nutrient content analysis of different food products
- 4) Publication of food Technology and Nutrition laboratory manual
- 5) Method validation on food nutrient analysis
- 6) Development of nutritional profile of traditional and ethnic foods of Nepal
- 7) Development of nutritious food recipe
- 8) Trial study on food technology development/product development

3.1 Drafting of Guidelines on nutrition labelling

Nutrition labels on food packaging are crucial as they provide important information to consumers and help them in making informed food choice as per their dietary requirement. A regulatory framework to provide proper guidelines on nutritional labelling is a must to protect consumers from misleading and deceptive nutritional labels and also to encourage food manufacturer in applying sound nutrition principles in food formulation and claiming their nutritional values properly. A study was done aiming to prepare the draft of guidelines on nutrition labelling. For this, 115 national and international processed and packed food samples from Chitwan, Kavre, Dhading, Nuwakot and Kathmandu valley were collected

and nutritional information: proximate constituents, salt, sugar, trans fatty acid, saturated fat and cholesterol were studied along with the nutrition labelling format. From the nutrition labelling study higher sodium content (upto 1500 mg/100gm) was observed in instant noodle samples while, chocolate contained higher amount of added sugar (upto 63gm/100gm), Saturated fat (31gm/100gm) and cholesterol (11.5 mg /100gm) than other food products.

3.2 Training on food processing Technology

In the fiscal year 2078/79, two trainings on food processing technology were conducted, each of six working days,. A total of 48 participants, 9 males and 39 females, participated in the trainings. One practical class per day was conducted where fermented mixed vegetable pickles, tomato sauce, orange squash, drying of fruits and vegetables, nutritious snacks bar, fruit candies, potato chips, composite flour bakery products were taught based on the availability of raw materials during the training season.

3.3 Nutrient content analysis of food products

Altogether 197 (Annual target: 160) different food product samples were analyzed for their nutrient content in the laboratory of food technology development and nutrition division. Table 3.0 shows the categories of food products analyzed for their nutrient contents.

Table 3.0: Number of food products analyzed

S.N	Food items	No. of sample
1	Cereals and cereals products	29
2	Pickles	18
3	Traditional snacks foods	54
4	Meat samples	56
5	Miscellaneous	40
	Total	197

3.4 Preparation and Publication of food Technology and Nutrition laboratory manual

Laboratory manual was prepared by compiling the standard and validated methods of analysis used in the food Technology and Nutrition laboratory to analyze local, traditional and indigenous Nepalese food samples and regular food samples for their nutritional composition.

3.5 Method validation on food nutrient analysis

During the fiscal year 2078/79, following analysis methods were validated in the Food Technology Development and Nutrition Laboratory;

- Estimation of total polyphenols by folin-ciocalteu method
- Estimation of iron content in food sample by UV-Vis spectroscopy method

3.5.1 Estimation of total polyphenols by folin-ciocalteu method

A method was validated for estimation of total polyphenols by Folic-ciocalteu reagent. Total polyphenols was estimated in three different food materials [Potato, Mahua (*Madhucal ongifolia*) and Gurju (*Tinospora cordifolia*)] which are presented in figure 3.1 and 3.2. The total polyphenols in Gurju leaves was found to be higher than in its stem (i.e 655.10 and 397.67 GAE/100g respectively).

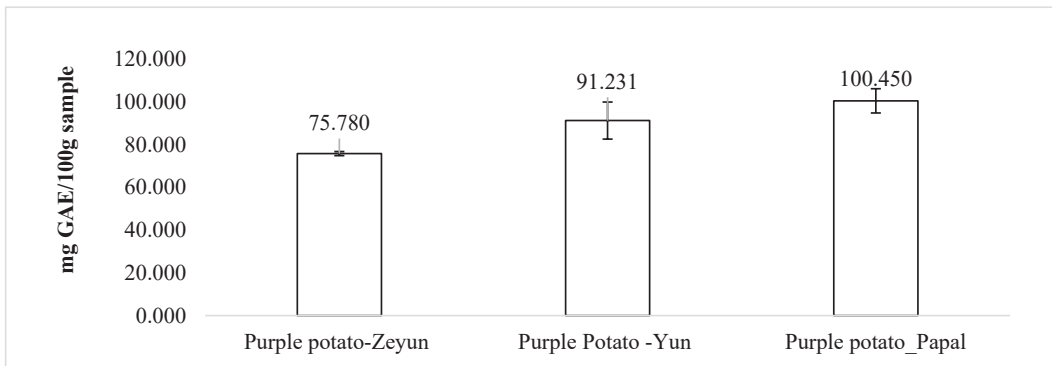


Figure 3.1 Total polyphenol content in different varieties of potatoes

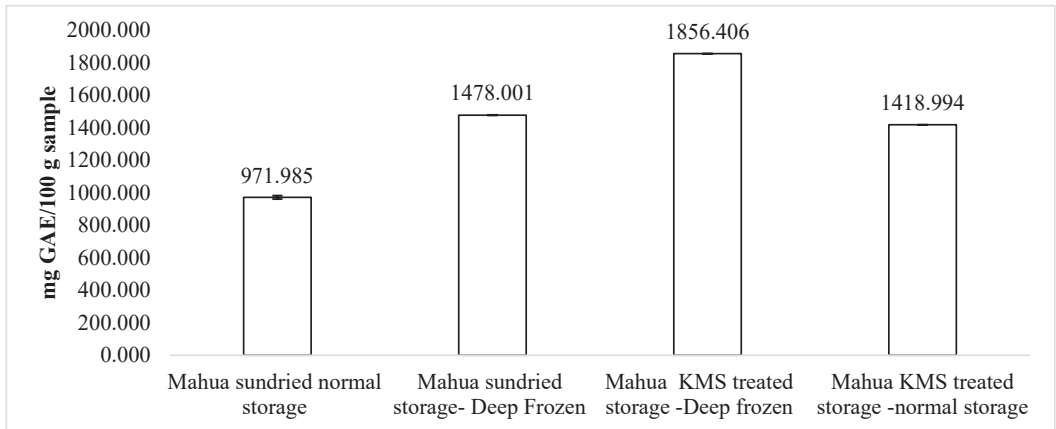


Figure 3.2 Total polyphenols in different treatments in mahua

3.5.2 Estimation of iron content in food sample by UV-Vis spectroscopy method

A method validation was done for iron estimation using ammonium thiocyanate using UV-VIS spectroscopy. For the method validation, five different food samples: Mahua flower (dried), garlic leaves, Bael powder, Turmeric powder and Jumli marsi were taken for iron

estimation. For comparison, iron was also estimation by AAS at the National Feed and Food Reference Laboratory, which are presented in table 3.1.

Table 3.1: Iron content in different food samples using UV-VIS and Atomic Absorption Spectroscopy

Food samples	Iron (Analysis by UV-VIS spectrophotometer (mg/100g, w.b))	Iron (Analysis by Atomic Absorption Spectrophotometer (mg/100g, w.b))
Turmeric	38	32.4
Jumli marsi	5.58	4.46
Mahua	7.71	7.25
Garlic leaves	5	4.4
Bael powder	5.84	4.7

3.6 Development of nutritional profile of traditional and ethnic foods of Nepal

A wide range of ethnic and traditional foods are consumed in Nepal. As, traditional foods contribute to the usual diet of the Nepalese population, nutritional evaluation of such foods is necessary to assess dietary intakes of Nepalese population. So a study was carried out to assess nutritional profile of Newari based ethnic and traditional foods. Samples of ethnic foods namely, *Gwarmari*, *Masala Malpuwa*, *plain Malpuwa*, *Chaku Yomari*, *Mass bara*, *Mung bara* were collected from different restaurants and eateries located within Kathmandu valley and evaluated for their nutritional values. The findings of the study showed that among the analysed samples *Plain Malpuwa* was higher in crude fat (37.28%) and energy value (490 Kcal/100 g) but lower in protein content (3.4%). While, *Mass bara* had higher protein content (16.3%) and lower energy value (178 Kcal/100 g). Likewise, higher crude fiber (1.86%) but lower crude fat (2.83%) were observed in *Chaku Yomari*. Also, the samples were analyzed for their minerals values and the result demonstrated that *Khuwa yomari* was rich in calcium (285mg/100g) and iron (1.9 mg/100g); tofu incorporated *veg chatamari* was rich in potassium (1999mg/100g) and sodium (288 mg/100 g) and *Mung bara* was rich in zinc (1.7 mg/100 g).

3.7 Development of nutritious food recipe

Following studies were done under the development of nutritious food recipe

1. Preparation of composite *Litti*
2. Preparation of nutritious *Tikki*
3. Preparation of millet flour incorporated chicken *mo:mo*

3.7.1 Preparation of composite *Litti*

Litti is a commonly consumed traditional snack food of eastern Terai region of Nepal. Generally, it is prepared as deep fried wheat flour dough stuffed with roasted chickpea flour and different spices. In order to make this traditional food more nutritious and tasty, the existing recipes were reformulated to prepare composite *Litti* incorporating different proportions of maize flour, soybean flour and green leafy vegetables along with wheat flour and chickpea flour. The recipe with maize flour (20%) and soyabean flour (5%) was found superior from sensory evaluation. From the nutrient analysis, composite *litti* was found higher in energy, fat and crude fiber. The nutrient composition of normal *Litti* and composite *Litti* are presented in table 3.2.

Table 3.2: Nutrient composition of normal and composite *Litti*

Nutrients (per 100 g)	Normal <i>litti</i>	Composite <i>litti</i>
Energy (Kcal)	391.1	394.5
Carbohydrate (g)	42.1	38.4
Fat (g)	21.06	23.8
Protein (g)	8.3	6.9
Crude fiber (g)	2.1	4.7

3.7.2 Preparation of nutritious *Tikki*

Tikki is a famous potato based snack food of Nepal. Nutritionally, it is rich in carbohydrate and fat. Incorporation of pulses and seasonal vegetables in *Tikki* recipe can make this product more nutritionally balanced. A study was undertaken to reformulate nutritious *Tikki* recipe as snack food for school children based on national standards developed by Ministry of Education, Science and Technology for day meal of school children. *Tikki* was prepared by using beaten rice, potato, vegetables, chickpea flour, egg, oil and spices. From sensory evaluation the reformulated recipe was found to have better taste, texture and flavor. The nutrient composition of prepared *Tikki* was analysed and was found to have protein (6.5 g), fat (12.5g), carbohydrate (35.5g) , crude fiber (0.9g) and energy (280.6 kcal) per100g.

3.7.3 Preparation of millet flour incorporated chicken *mo:mo*

Mo:mo is a popular Nepalese snack food preferably consumed by all age group people. *Mo:mo* is generally prepared with refined wheat flour *maida*. Incorporating millet flour in *mo:mo* dough can enhance the nutritional value and add new taste, flavor and appearance to the product. In this regard, study was done to prepare *mo:mo*, incorporating different proportions of millet flour. From the sensory evaluation *mo:mo* prepared with 40% millet and 60% wheat flour was found best in terms of physical appearance, taste and flavor. Proximate analysis showed no significant difference ($p<0.05$) in constituents except for

crude fiber. The result of proximate analysis of millet flour incorporated *mo:mo* and wheat flour *mo:mo* are presented in table 3.3.

Table 3.3: Proximate constituents of millet flour incorporated *mo:mo* and wheat flour *mo:mo*

Nutrients	Millet Incorporated chicken <i>mo:mo</i>	Maida chicken <i>mo:mo</i>
Moisture	56.2	56.8
Energy	208.9	209.5
CHO	24.6	23.5
Protein	9.9	9.9
Fat	8.0	8.5
Crude fiber	0.6	0.3

3.8 Trial study on food technology development and nutrition

Following studies were conducted under the trial study

1. Quantification of amylose in different rice varieties of Nepal
2. On site survey study of *chhurpi* manufacturing industries
3. Study on nutritional composition of Nepalese snacks foods

3.8.1 Quantification of amylose in rice varieties of Nepal

Eleven samples of rice varieties were collected from different parts of the country. The samples were analyzed for the amylose content. The amylose content for the collected rice samples are shown in figure 3.3. There was no correlation between moisture content and amylose content of the collected rice samples ($R^2 < 0.05$).

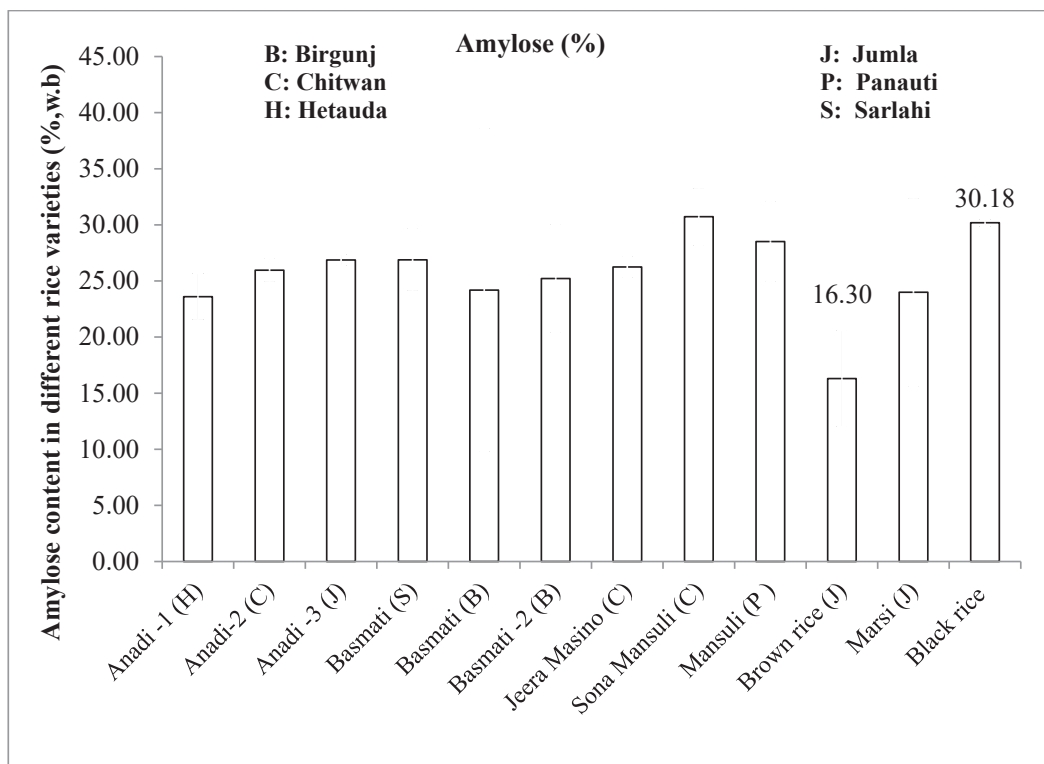


Figure 3.3 Amylose content in different rice varieties of Nepal

3.8.2 On site survey study of *chhurpi* manufacturing industries

A study was undertaken to collect the information on the processing and packaging technology of traditional *chhurpi* making through site visit and surveys. On site visit of B.D.C Foods Pvt. Ltd., Bharatpur and Gayatri Dairy Industries Pvt. Ltd. and Subha Dairy industries Pvt. Ltd. of Makawanpur were done. Slight differences were noted in processing technology among the various industries mainly on source of milk (cow, buffalo, mixed, yak), pasteurization temperature (80°C to 90°C) and drying conditions (normal room temperature, cold dry air, sun drying, smoking). The varieties of *chhurpi* commonly produced were high fat *chhurpi*, low fat *chhurpi*, hard *chhurpi*, soft *chhurpi*, milk *chhurpi* and buttermilk *chhurpi*. From this study it was observed that variation exists in *chhurpi* making technologies which necessitate the classification of *chhurpi* while formulating product standards of *chhurpi*. The water activity (a_w) of the *chhurpi* samples were found in the range of 0.715-0.751 at 27±1 °C. Further, Proximate analysis of samples collected from different factories was undertaken and the results obtained are as tabulated in table 3.4.

Table 3.4: Proximate composition of different varieties of Chhurpi

Sample Name	Moisture (%)	Total ash (%)	Crude Fat (%)	Crude Protein (%)	Crude fiber (%)	Carbohydrate (%)	Energy (Kcal/100g)
Pumpkin <i>Chhurpi</i> (S)	12	4.59	0.29	78.16	0	4.96	335.09
Normal <i>Chhurpi</i> (S)	14.2	4.6	0.48	75.31	0	5.41	327.2
Strawberry flavor <i>Chhurpi</i> (S)	13.3	3.79	0.87	75.02	0	7.02	706.74
Coconut <i>chhurpi</i> (G)	13.33	6.25	1.39	73.29	0.00	5.74	328.65
Strawberry flavor <i>chhurpi</i> (G)	12.22	5.59	0.91	74.38	0.00	6.90	333.33
Human use <i>chhurpi</i> (G)	12.49	5.04	15.08	56.44	0.00	10.95	405.28
Normal <i>chhurpi</i> (G)	10.10	5.36	16.58	60.88	0.00	7.09	421.06
Turmeric <i>chhurpi</i> (G)	11.54	6.22	3.11	71.98	0.00	7.14	344.52
Normal <i>chhurpi</i> (B)	11.49	5.20	17.47	56.71	0.00	9.12	420.61

Note: The initials within brackets following sample names are; S=Subha Dairy Industries, G=Gayatri Dairy Industries & B=B.D.C. Foods.

3.8.3 Study on nutritional composition of Nepalese snacks foods

Eating between meals (snacking) is a common eating practice in Nepal and it contributes to significant portion of daily energy intake of Nepalese people. Yet, only little information is available on nutrient composition and energy density of such snack foods. Also, a wide variation exists between the serving sizes of individual snack food items. This constrains the proper dietary guidance to people about choosing balanced and healthy snacks. Thus, a study was conducted to analyze the nutrient composition of different popular snack food items of Nepal for use in nutritional studies and for public information. The results obtained are as tabulated below in table 3.5.

Table 3.5: Proximate analysis of snacks foods

SAMPLE	Moisture (%)	Total ash (%)	Crude protein (%)	Crude fat (%)	Crude fibre (%)	Carbohydrate (%)	Energy (kcal/100g)
Samosa	41.04±1.58	1.71±0.31	7.37±2.39	16.62±2.52	0.94±0.38	32.32±6.31	308.36±7.87
Parotha	51.11±4.95	1.58±0.27	4.12±2.12	2.79±1.62	0.58±0.19	41.21±1.24	200.90±27.30
Kabuli chana	72.44±1.83	1.61±0.22	3.71±0.60	9.59±4.11	1.06±0.19	11.58±5.53	147±19.09
Kalakand	24.49±4.16	2.95±0.15	9.69±4.57	9.63±4.55	0.19±0.001	53.89±6.39	340.94±25.45
Lalmohn	29.75±0.93	0.95±0.15	4.97±2.92	5.26±1.05	0.19±0.1	59.16±2.23	303.86±2.62
Kheer	71.6±0.7	0.63±0.06	4.72±1.75	1.27±0.96	0.14±0.02	21.65±1.53	116.87±7.81
Paneermomo	55.39±3.21	1.99±0.19	6.46±1.02	6.17±3.6	0.66±0.13	29.22±0.21	198.73±31.18
Chicken momo	53.57±0.76	1.55±0.13	7.28±0.64	7.84±0.86	0.60±0.01	29.36±0.43	217.11±6.65
Veg. chowmein	63.14±0.41	1.53±0.35	4.03±0.52	2.54±1.59	0.31±0.06	28.54±0.89	153.17±9.74
Momoachaar	88.64±2.77	1.98±0.2	2.13±0.55	3.32±1.64	0.49±0.23	3.44±0.94	52.15±19.82
Samosa achaar	46.35±4.98	1.70±0.12	1.01±0.04	0.22±0.03	0.64±0.40	50.08±4.48	206.36±17.99

4. SPS National Enquiry Point

The SPS National Enquiry Point has been established at DFTQC as per provision on transparency in WTO SPS Agreement, in order to response to the query made by WTO member countries or SPS related stakeholders. In fiscal year 2078/79, the following activities were accomplished:

- 1) SPS enquiry services were provided and enquiry made on mandatory food standards and on SPS notifications were timely responded.
- 2) The SPS interaction program in presence of SPS stake holders at Krishnanagar custom point was successfully organized in coordination with Food Import Export Quality Certification Office, Krishnanagar.
- 3) SPS stakeholders meeting on SPS related to food safety and Nepal National Single Window System (NNSW) were conducted.

Up to this fiscal year the following rules, regulations and guidelines were notified (Table 4.0.)

Table 4.0: SPS Notifications

S.N.	Notification
1.	Quarantine pest of Gerbera, Carnation, Cauliflower
2.	Standard of Rice Bran Oil
3.	Quarantine standards for Day Old Chicks, Table Egg
4.	Proposed quality standard for Cornflakes, Preservatives
5.	Proposed mandatory quality standard for fortified wheat flour
6.	Plant Protection Rule, 2010
7.	Plant Protection Act, 2007
8.	Plant Protection Act, 2007-Extension of the comment Period (Add.)
9.	Notification regarding the establishment of animal
10.	National Plant Quarantine Pests of apple, citrus,
11.	Standards of Maize (corn), Wheat, Paneer, Cinnamon powder and Wheat flour
12.	All Products–Phytosanitary Certificate– Extension of the comment period (Add.)
13.	Directives on Export Import Inspection and Quality Certification System (Food)
14.	Brief recap of the Original Notification (Add.)
15.	Blended Edible Vegetable Oil Standard
16.	Avian influenza (bird flu) (Emergency Notification)
17.	Animal Slaughter house & Meat Inspection Act and Regulation
18.	Animal Quarantine Working Procedure, 2007
19.	Animal Health & Livestock Services Act, 1998 and Regulation (Add.)
20.	All Food Products–Directives on Export-Import (Add.)
21.	Phytosanitary Certificate
22.	Processed Drinking Water/Mineral Water
23.	Standard for Whiskey, Brandy, Gin and Vodka
24.	Maximum limit of Aflatoxin and melamine
25.	Standard for processed milk, low fat milk, full cream milk and skimmed milk.
26.	Glossary of Phytosanitary terms
27.	Maximum Residue Limit of Pesticides on fresh fruits, vegetables and tea
28.	Proposed Quality and Safety Standards of <i>Pustakari</i> , <i>Gundpak</i>
29.	Proposed Quality and Safety Standards of <i>Pustakari</i> , <i>Dalmoth</i> and Beaten Rice
30.	Fruit juices
31.	Fruit Beverages
32.	Fruit Nectar
33.	Proposed Maximum Residue Limits of Pesticide for Fruits and Vegetables

5. Other Activities

During this period, various programs conducted by the department and offices are as follows:

- World Food Safety Day was celebrated on June 7, 2022 with the global slogan “Safer food, better health” by organizing week-long various awareness related interaction, market and hotel/restaurant monitoring, street food safety targeted programs and other various programs.
- Food safety and quality bill was approved by house of representative and submitted to National assembly for further discussion.
- During summer and rainy season various infectious diseases including diarrhea was prevalent in some places of Kathmandu valley. To address the problem, Department intensified market and industry inspection by monitoring processed drinking water industries and hotel restaurant. For this purpose, 46 samples were collected and action was taken against those industries/businesses that were found below minimum requirement.
- Regarding the complaints about quality of honey found in the market, special monitoring of honey producing industries was done 89 times across the country and 120 samples were collected for laboratory analysis.
- During this period, inspection regarding the use of prohibited artificial ripening agents in fruits was conducted 118 times across the country.

6. Revenue Collection

DFTQC collects revenues from services like laboratory analysis and licensing. The analytical fee is charged depending on the parameter to be analyzed. The detail of Non-tax revenue rates for Laboratory analysis services as published in Nepal Gazette is given in Annex 2. Table 5.0 shows the detail of revenue collection in this fiscal year.

Table 5.0: Revenue collection in the fiscal year 2078/79

S.N.	Office	Revenue collection ('000)
1	DFTQC, Kathmandu	17765
2	FTQCO, Biratnagar	2948
3	FTQCO, Janakpur	2373
4	FTQCO, Hetauda	1963
	FTQCO, Pokhara	447
5	FTQCO, Bhairahawa	10767

6	FTQCO, Nepalgunj	5193
	FTQCO, Surkhet	20
7	FTQCO, Dhangadhi	2790
8	FIEQCO, Kakarvitta	1957
9	FIEQCO, Rani	4369
10	FIEQCO, Jaleswar	1890
11	FIEQCO, Birgunj	10519
12	FIEQCO, Tatopani	2
13	FIEQCO, Rasuwa	143
14	FIEQCO, Belahiya	7882
15	FIEQCO, Krishananagar	2229
16	FIEQCO, Nepalganj	4524
17	FIEQCO, Dhangadhi	2452
18	FIEQCO, Mahendranagar	190
19	FIEQCO, TIA	171
	Total	80591

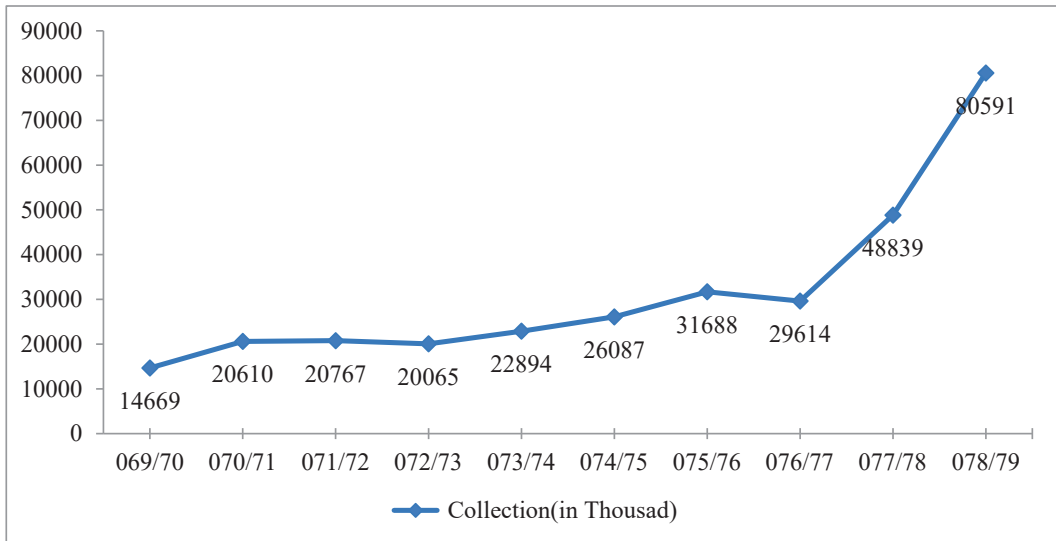


Figure 8: Revenue collection NRs ('000) for past 10 years

Figure 8 shows the trend of revenue collection over past ten years. From the above figure, it can be observed that the revenue collection is increasing every year. This may be due to

increase in the number of samples analyzed by the laboratories for import/export certification, licensing purpose, on request samples, lot verification etc. After the establishment of 24 division offices and 8 new food import/export quality certification offices in the fiscal year 075/76, revenue collection increased gradually due to increase in number of samples received for import/export certification at custom points and increased awareness about the legal provision of licensing for food business operators. In the fiscal year 078/79, the revenue collection was almost doubled in comparison to previous year after beginning the testing of pesticide residue using rapid bioassay of pesticide residue (RBPR) by 7 different offices under DFTQC from 1st of Kartik, 2079.

Annex 1

(a) Existing Scope of Accreditation in NFFRL (Chemical)

S.N.	Commodities	Specific test performed
1.	Fats and Oils	Free fatty acid
		Refractive index
		Acid value
		Peroxide value
2.	Fruits and vegetables Products	Total soluble solids (TSS)
		Acidity
		Sulfur dioxide (SO ₂)
		Benzoic acid
		Tartazine
		Sunset Yellow
3.	Spices and Condiments (Ginger, Cardamom)	Volatile oils
		Crude fibre
		Total ash
4.	Tea and coffee	Total ash
		Water extracts
		Crude fibre
		Caffeine
		Lead
5.	Cereals and cereals products (Instant noodles, Biscuits, Infant foods)	Moisture
		Proteins
		Total aflatoxin
		Aflatoxin G2
		Aflatoxin B1
		Zinc
		Calcium
		Magnesium
		Iron
6.	Honey	Moisture
		Acidity as formic acid
		Hydroxymethyl furfural
7.	Fruits and Vegetables	Organo chloride Pesticide
		Aldrin, SS
		Alpha-BHC, SS
		Alpha-Chloridane, SS

			Gamma-BHC, (Lindane) SS
			Endosulphan sulphate SS
			Endosulfan I (Alpha) SS
			Endrin, SS
			Endrin Aldehyde, SS
			EndosulfanII, (Beta) SS
			Beta-BHC, SS
			Delta-BHC, SS
			Dieldrin, SS
			Endrin Ketone, SS
			Heptachlor, 99% SS
			Gamma-Chlordane SS
			Heptachlor-epoxide Isomer B, SS
			4,4'-DDD, SS
			4,4'-DDE, SS
			4,4'-DDT
			Methoxy Chlor
		Organo phosphorus Pesticide	Sulfotep
			Thionazin
			Disulfoton
			MethylParathion
			Parathion
			O,O,O- Triethylphosphorothiotae
			Famphur
			Dimethoate
			Phorate
8.	Processed water		
			Hardness
			Alkalinity
			Chloride content
			Lead
			Cadmium
			Arsenic
			Calcium
			Copper
			Iron

		Magnesium
		Zinc
9.	Milk and milk products (skimmed, whole milk powder, condensed milk)	Milk fat
		Moisture
		Protein
		Ash content
		Solid not fat
10	Meat and Meat Product	Sodium Nitrite

(b) Existing Scope of Accreditation in NFFRL (Microbiological)

S.N.	Products(s)/Material of test	Specific tests performed
1.	Fruits and vegetable products	Total Bacterial Count, cfu/ml or gm
		Yeast and Mould Count, cfu/ml or gm
		Coliform count, cfu/gm or ml
		<i>Escherichia coli</i>
		Enterobacteriaceae
2.	Cereals and Bakery products	Total Bacterial Count, cfu /ml or gm
		Yeast and Mould Count, cfu/ml or gm
		Coliform count, cfu/gm or ml
		<i>Escherichia coli</i>
		Enterobacteriaceae
3.	Water	Total Bacterial Count, cfu/ml or gm
		Yeast and Mould Count, cfu/ml or gm
		Coliform count, cfu/gm or ml
		<i>Escherichia coli</i>
4.	Milk and Milk Products	Total Bacterial Count, cfu/ml or gm
		Yeast and Mould Count, cfu/ml or gm
		Coliform count, cfu/gm or ml
		<i>Escherichia coli</i>
		Enterobacteriaceae
5.	Meat and Meat products	Total Bacterial Count, cfu/ml or gm
		Yeast and Mould Count, cfu/ml or gm
		Coliform count, cfu/gm or ml
		<i>Escherichiacoli</i>
		Enterobacteriaceae

Annex 2

Non-tax revenue rates for Laboratory analysis services as published in Nepal Gazette,
2078/04/25, section 71, Number 17, Part 5.

S.N.	Food Products	Revenue (NPR)
01.00 Milk and Milk Products		
1	Infant Milk Food	1000/-
2	Whole milk powder	1,500/-
3	Skimmed milk powder	1,500/-
4	Fluid milk	650/-
5	Condensed milk	700/-
6	Butter	1,500/-
7	Frozen Dessert	1,500/-
8	Ice cube	1,000/-
9	Yoghurt	900/-
10	Cream	500/-
11	Paneer	500/-
12	Processed milk	650/-
13	Nutrient content and microbiological test of Infant Food	For nutrient content, as per code no. 12, and for microbiology as per code no. 17
02.00 Fats and Oils		
1	Edible Vegetable Oil	700/-
2	Crude oils	400/-
3	Mustard oil/Rapeseed oil	1,100/-
4	Animal Ghee	800/-
5	Vegetable Ghee	800/-
6	Peanut butter	1,000/-
7	Bakery Shortening	800/-
8	Mustard seeds	300/-
9	Coconut powder	1,000/-
03.00 Fruits and Vegetable Products		
1	Jam, Jelly, Marmalade, Squash, Fruit juice, Beverages etc.	800/-

2	Tomato ketchup, Sauce including microbiological test	1,200/-
3	Pickles (excluding preservatives test)	500/-
4	Tomato juice and other juices	600/-
5	Canned Fruits	800/-
6	Soft drinks, Soda, Energy drinks, Sports drinks, Carbonated beverages etc.	1,000/-
7	Fruit beverage powder	500/-
8	Vinegar	800/-
04.00 Spices and Condiments		
1	Spice seed Grading	300/-
2	Spice powder	600/-
3	Seasoning powder	500/-
4	Prawn cracker	500/-
5	Dried Ginger	900/-
05.00 Tea, coffee, CoCoca and their products		
1	Tea and Coffee	700/-
06.00 Salt		
1	Edible Salt	700/-
07.00 Cereal and Legume Products		
1	Wheat flour, semolina, Fortified flour, Rice	700/-
2	Biscuit, Bread	600/-
3	Cookies	550/-
4	Other Bakery items	500/-
5	Stick noodles	400/-
6	Instant noodles	900/-
7	<i>Dalmoth, Bhujia</i> and other Snacks food	700/-
8	Cereals/Legumes	500/-
08.00 Processed drinking water		
1	Processed drinking water including microbiological tests	2,500/-
09.00 Sweetening Agents		
1	Sugar, Sugar candy	850/-
2	Honey	1,100/-
10.00 Confectionery Products		
1	Chocolate, Toffee, Candy, Lozenges	750/-

2	Chewing gum, Bubble gum	500/-
11.00 Food Preservatives, Additives and Contaminants		
1	Per Heavy metal	550/-
2	More than one Heavy metal group	1,500/-
3	Minerals (Fe, Ca, Mg, Mn, etc.)	250/-
4	Mycotoxins/Total aflatoxins	1,000/-
5	Vitamins	1,000/-
6	Melamine	1,000/-
7	Color qualitative	250/-
8	Color quantitative	700/-
9	Formalin	1,000/-
10	Benzoic acid preservative	400/-
11	Nitrite preservative	400/-
12	Other preservatives/Food additives each	400/-
13	Sulfur dioxide preservative	2,000/-
14	Pesticide Residues	
	Organochlorine, Organophosphorus group	2,000/-
	Other groups/per pesticide	2,000/-
	Per Pesticide residue	1,000/-
15	Veterinary drug residue per antibiotic each	700/-
16	Veterinary drugs residue in group	2,000/-
17	Monosodium glutamate, MSG	500/-
18	Radiation test by Becquerel Monitor	1,000/-
19	Taurine amino acid	1,000/-
20	Histamine	1,000/-
21	Amino acids profile	2,000/-
22	Fatty acids/Trans fatty acids	2,000/-
23	Antioxidant each	1,000/-
24	Specific gravity	400/-
25	HMF test	1,000/-
26	Caffeine in foods and Beverage	300/-
27	Iodin content	300/-
28	Grayanotoxins including other natural toxins each	1,000/-
12.00 Parameter wise Revenue for Misc. Food Products		

1	Moisture	150/-
2	Protein	300/-
3	Carbohydrate	300/-
4	Sugar	300/-
5	Total solid	300/-
6	Starch qualitative	300/-
7	Crude Fat	300/-
8	Total Ash	200/-
9	Grading per parameter (Cereals, Spices and others)	150/-
10	Acidity	150/-
11	pH	100/-
12	Alkalinity	150/-
13	Crude fiber	400/-
14	Water soluble ash	200/-
15	Acid Insoluble Ash	200/-
16	Alcoholic extract	200/-
17	Salt content	200/-
18	Solubility	150/-
19	Refractive index	200/-
20	Saponification value	200/-
21	Iodine value	200/-
22	Unsaponification matter	300/-
23	Free fatty acid/Acid Value	150/-
24	Peroxide value	200/-
25	Melting point	150/-
26	Sucrose quantitative	800/-
27	Glucose quantitative	800/-
28	Fructose quantitative	800/-
29	Drained weight	800/-
30	Volatile oil	100/-
31	Non-volatile oil	200/-
32	Lead chromate test	200/-
33	Curcumine	100/-
34	Sodium chloride	250/-

35	Organic acid each	800/-
36	RM value	250/-
37	Lactometer verification each	550/-
38	Carbondioxide pressure test	400/-
39	Net weight or volume	100/-
40	Proximate test	1,500/-
41	Antinutritional compound	700/-
42	Color profile test by Chromameter	1,000/-
43	Texture profile test	1,000/-
44	Water activity	500/-
45	Fill of container	100/-
46	Fruit content	400/-
47	Uric acid	500/-
48	gluten	250/-
13.00 Adulteration Test		
1	Hexabromide test	150/-
2	Argemone test	300/-
3	Beliar test	300/-
4	Baoudine test	150/-
5	Lard test, Qualitative	300/-
6	Mineral oil test, Qualitative	300/-
7	Phosphatase test, Qualitative	200/-
8	Methylene blue test	200/-
9	Resasurine test	200/-
10	Bicarbonate test, Qualitative	200/-
11	Glucose test, Qualitative	150/-
12	Starch test, Qualitative	150/-
13	Nonedible color test, Qualitative	300/-
14	Urea test, Qualitative	300/-
15	Neutralizer test, Qualitative	300/-
16	Formalin test by test kit	300/-
17	Pesticide test by test kit	300/-
18	Khesari test, Qualitative	300/-

14.00 Alcoholic Beverages		
1	Wine and Beer quality	2,000/-
2	Liquors, Whiskey, Rum, Vodka, Gin etc.	2,000/-
3	Methyl alcohol, Qualitative	400/-
4	Ethyl alcohol	550/-
5	Methyl alcohol, Qualitative	1,100/-
6	Other each parameter	400/-
15.00 Meat Products		
1	Fresh meat	950/-
16.00 Animal Feeds		
1	Feed products	1,600/-
2	Feed Ingredients	1,500/-
17.00 Microbiological Test		
1	Mold count	250/-
2	Yeast and its spores	250/-
3	Total Bacterial count	250/-
4	Coliform count	300/-
5	Salmonella spp.	500/-
6	Staphylococcus spp.	500/-
7	Clostridium botulinum/perfringes	500/-
8	Streptococcus spp.	300/-
9	Bacillus cereus	300/-
10	Vibrio spp.	300/-
11	Listeria monocytogenes	300/-
12	Nematodes	100/-
13	Other microorganisms each	300/-
14	Swab test	300/-
15	Enterobacteriaceae	400/-
16	Microorganism not mentioned in the above list (per parameter)	400/-



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