



# Nutritional quality in catering canteens: the Nutrient Analysis Critical Control Points process

Local Health Agency of Trieste integrated with Trieste  
University - Faculty of Medicine

The Department of Prevention - Food and nutrition hygiene service  
and

Trieste University

Faculty of Economics\* - Faculty of Pharmacological  
Sciences\*\*

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## WHO – HEALTH 2020 - FAO

Ensuring the wider availability of **minimally processed foods** through short supply chains has the potential to contribute significantly to creating healthy and sustainable food systems.

## WHO –Food and Nutrition Action Plan 2015 – 2020

**OBJECTIVE 2** - To Promote the life long benefits of a healthy diet, ..**Adopt tools and strategies to address the special nutrition needs** of vulnerable groups, including older people...

The concluding remarks of “The role of nutrition in active and healthy ageing” by JRC state that the way to ensure proper nutrition in older people is **to maximise their intake of essential vitamins, minerals and bioactive compounds from natural food sources**.

The image shows the front cover of a report titled "The Role of Nutrition in Active and Healthy Ageing". The cover features the World Health Organization Europe logo at the top left, followed by the text "Health 2020: agriculture and health through" and "f". The European Commission logo is also present. The title "JRC SCIENCE AND POLICY REPORTS" is at the top right. Below the title, the report's title is centered. A subtitle reads "For prevention and treatment of age-related diseases: evidence so far". The authors' names, Tsz Ning Mak and Sandra Caldeira, and the year 2014 are listed. At the bottom, there is a photograph of a young girl and an elderly man smiling and holding slices of watermelon. The Joint Research Centre logo is visible in the bottom right corner of the photo.

# The malnutrition of institutionalized and fragile elderly in Italy

2° challenge

Voce	Pesatura (in decimi)
Sovrappeso bambini	8,82
<b>MCP anziani istituzionalizzati e fragili</b>	<b>8,80</b>
Disturbi della nutrizione e alimentazione	8,74
Sovrappeso anziani	8,72
MCP ospedaliera	8,66
MCP come causa morte pz oncologico	8,64
Carenza folati	8,63
Sovrappeso adulti	8,62
Sarcopenia	8,62
Carenza vit D anziani	8,61
Non conoscenza dieta mediterranea	8,59
Normal Weight Obesity	8,57
Povertà	8,56
MCP anziani a domicilio	8,55
Nutrizione artificiale domiciliare	8,55
Problematiche connesse alla nutraceutica	8,54
Tossinfezioni alimentari	8,52
DM2	8,52
Prevenzione carenza marziale 0-3 anni	8,51
Insufficiente assunzione vegetali	8,50
MCP integrazione per os	8,45
Pranzo fuori casa <b>voce eliminata</b>	6,89
Aumento stranieri regolari <b>voce eliminata</b>	6,72
Ortoressia <b>voce eliminata</b>	6,42
MCP in età pediatrica e perinatale <b>voce pervenuta in ritardo</b>	nc
Insufficiente assunzione polinsaturi <b>voce pervenuta in ritardo</b>	nc

## RECENTI PROGRESSI IN MEDICINA

**Manifesto delle Criticità in Nutrizione Clinica e Preventiva**  
Le prime dieci sfide italiane (2015-2018)

### RAZIONALE

### PREDISPOSIZIONE DEL DOCUMENTO

**CRITICITÀ NAZIONALI IN NUTRIZIONE CLINICA E PREVENTIVA COMUNI ALLA MAGGIOR PARTE DEI PAESI AVANZATI**

Sovrappeso/obesità

Diabete mellito di tipo 2

Malnutrizione calorico-proteica (MCP)

Sarcopenia

Disturbi della nutrizione e dell'alimentazione

Comportamenti e condizioni socio-economiche a rischio di scadimento dello stato di nutrizione

Nutrizione artificiale domiciliare (NAD)

Stati carenziali

Tossinfezioni alimentari

Diffusione incongrua di dati nutrizionali e necessità

di aggiornamento legislativo nell'ambito della nutraceutica

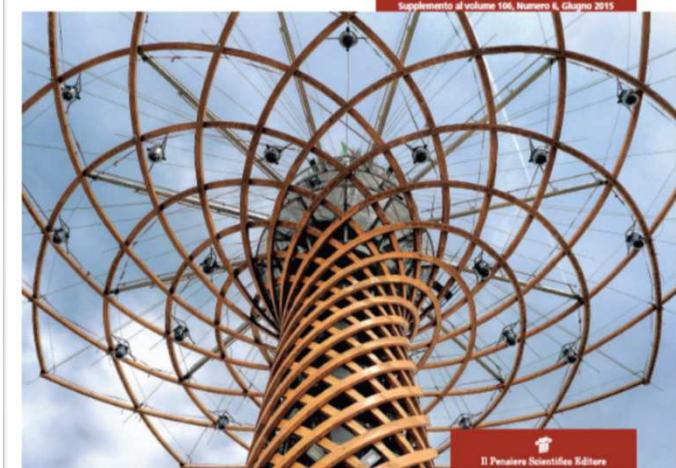
### TABELLA DELLE PESATURE PER VOCE

### PROPOSTE D'INTERVENTO

Assenza della nutrizione clinica tra gli obiettivi formativi del core curriculum del corso di laurea in medicina e chirurgia

Miscellanea di proposte

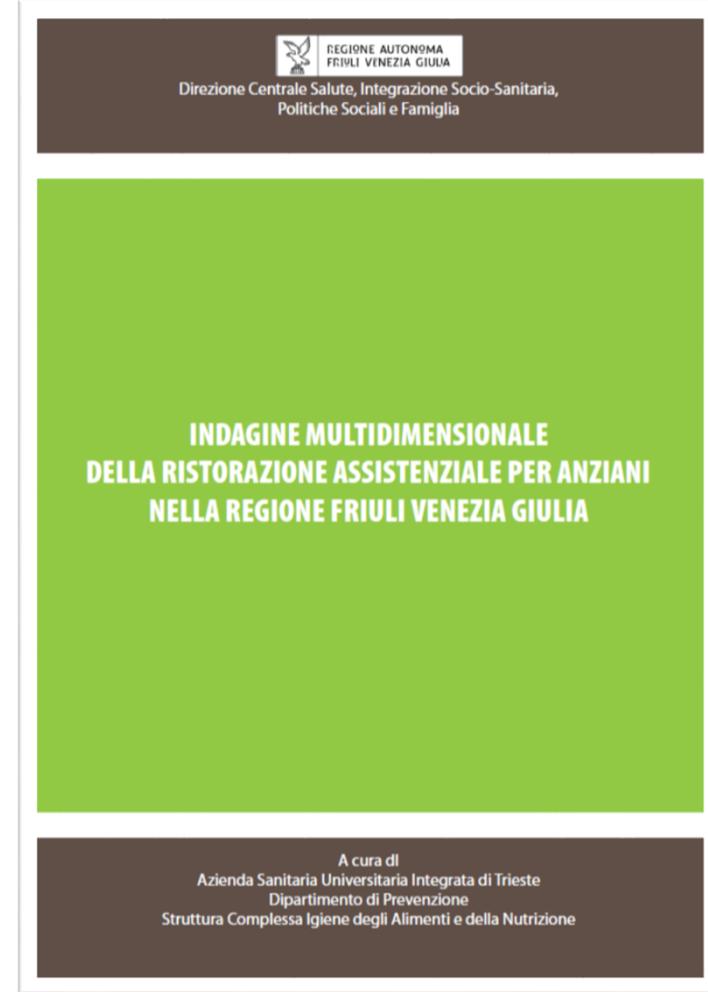
### CONCLUSIONI



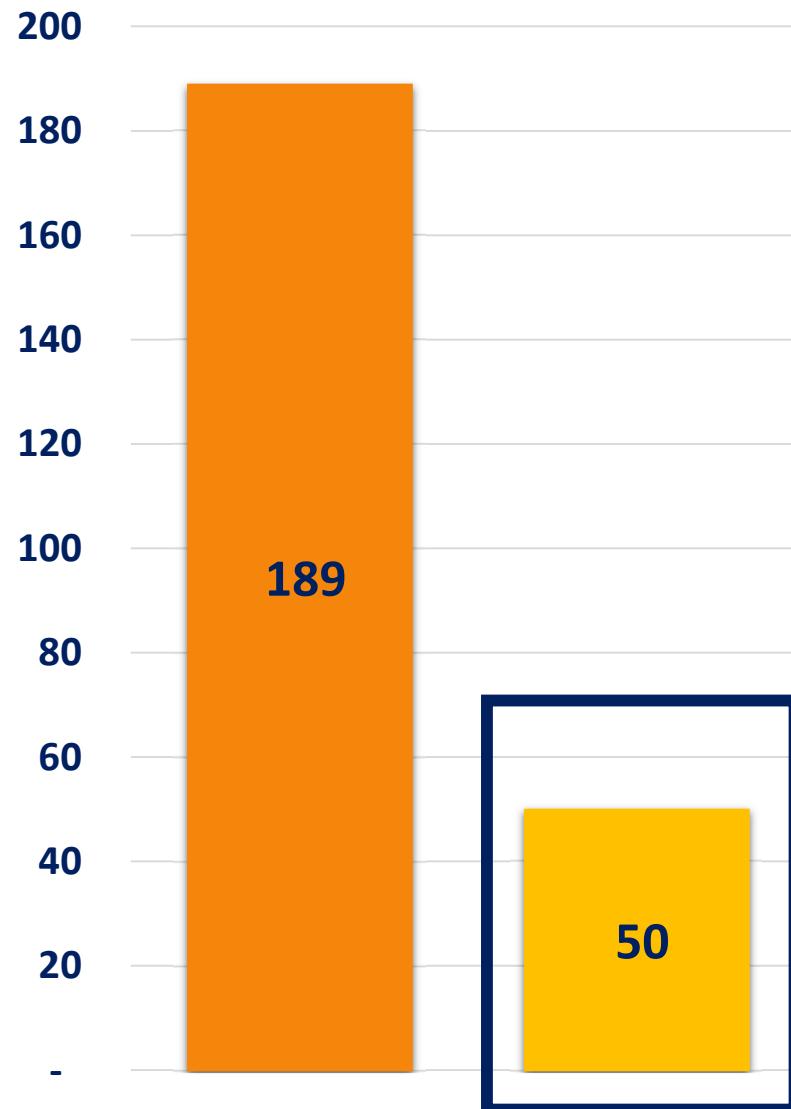
## “Multidimensional investigation of catering services for senior citizens in the region Friuli Venezia Giulia”

The survey investigated:

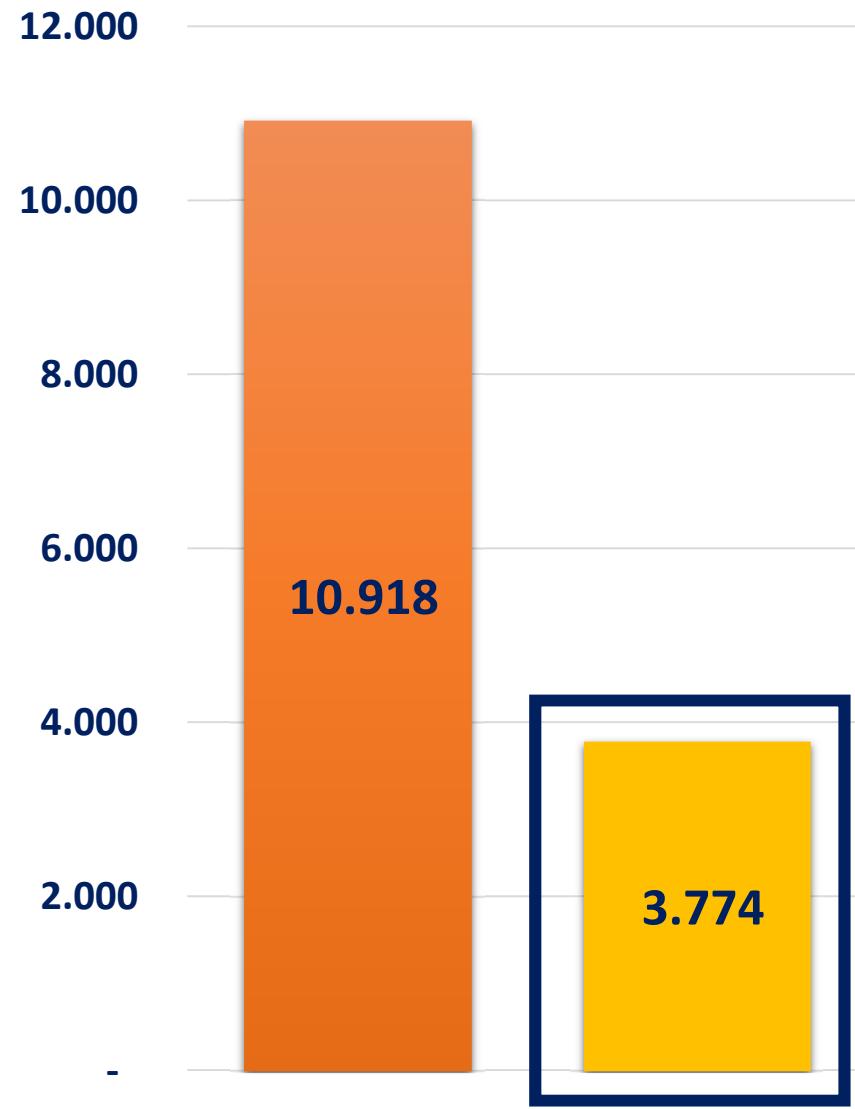
1. the general context of structures
2. the organizational characteristics of catering services
3. personal services
4. dietary conditions
5. the quality of food supplies
6. and hygienic food safety



Nursing Homes n 189    (n=50, 26%)

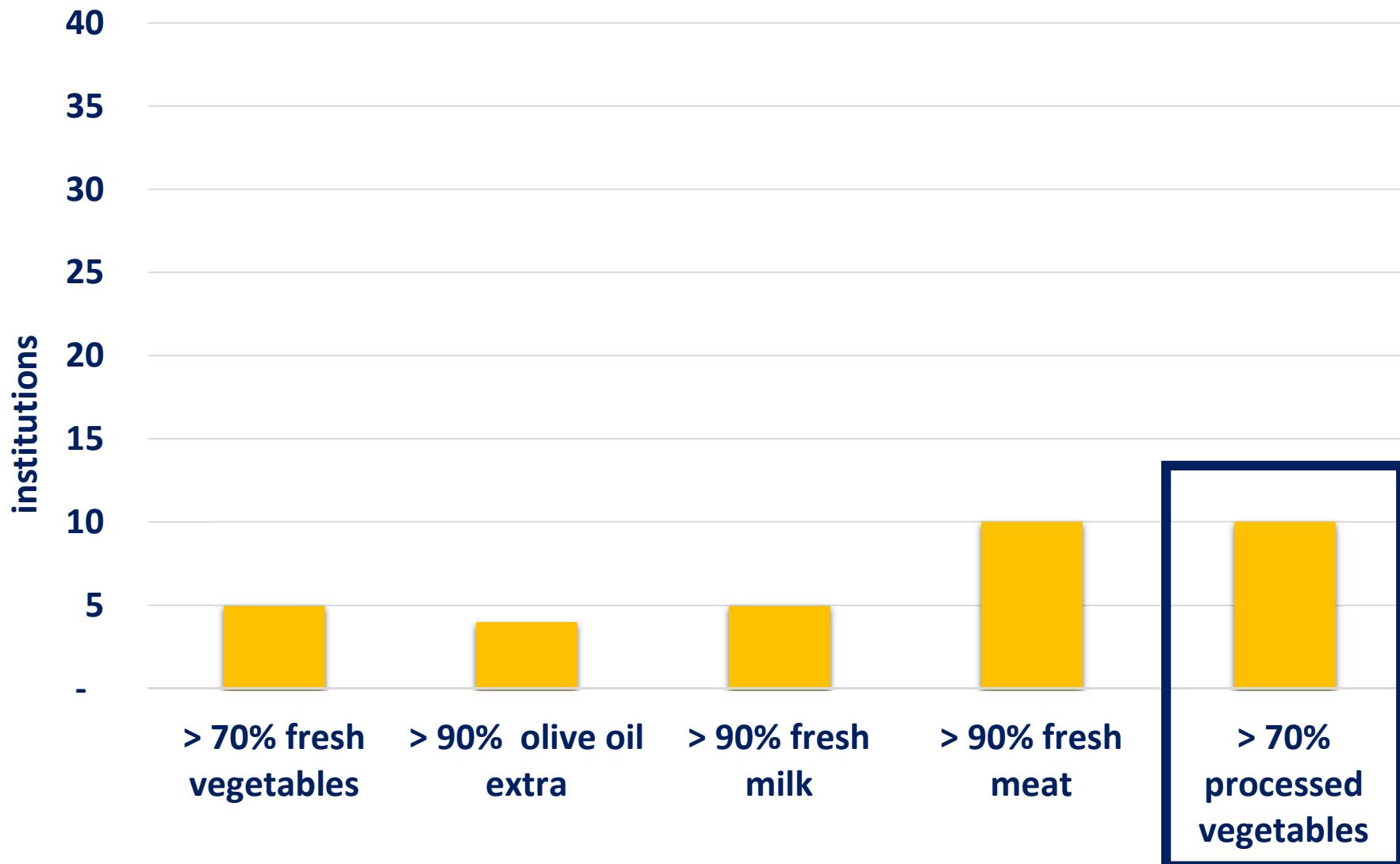


Residents n 10918    (n=3774, 35%)



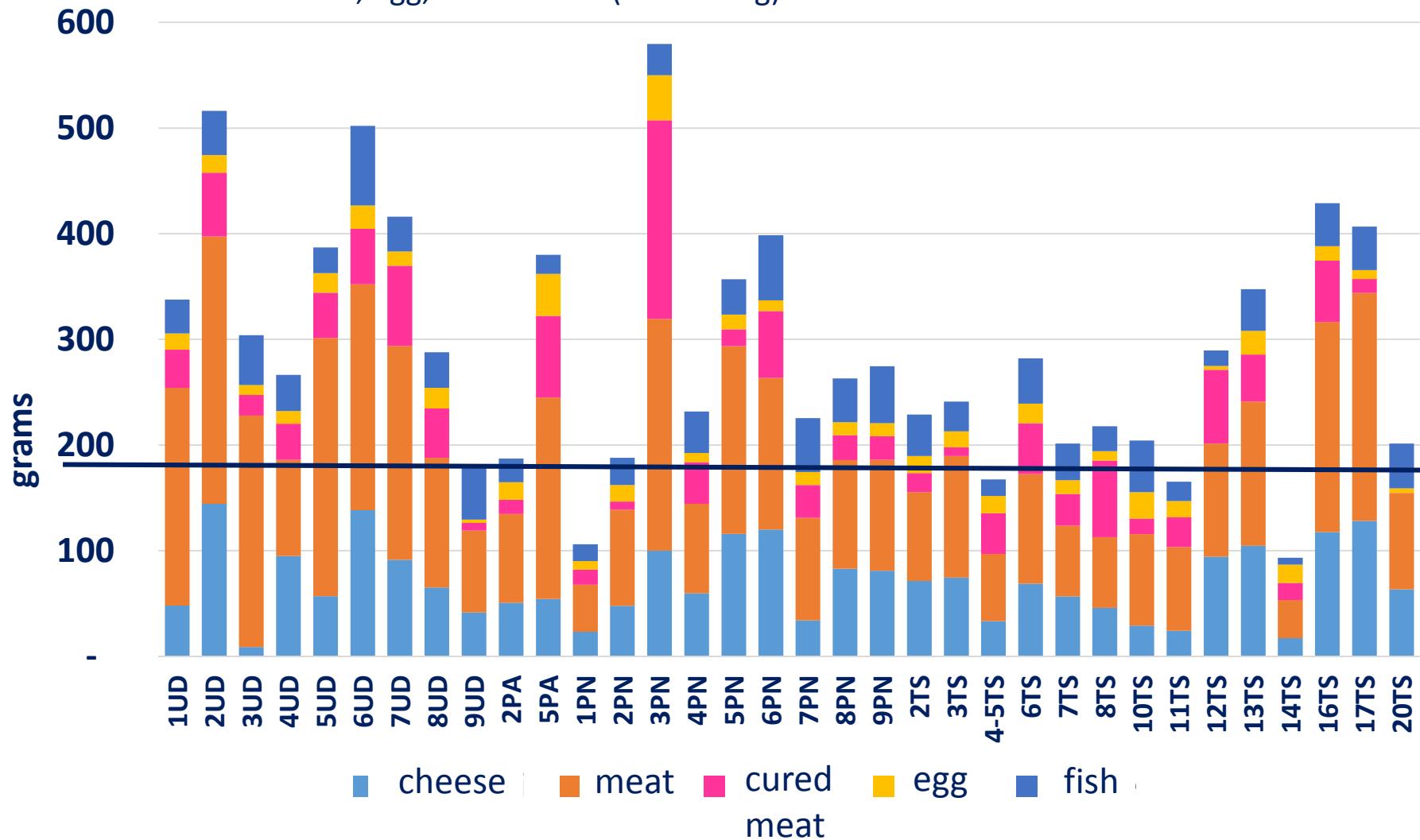
## area of quality food supplies: FRESH / PROCESSED FOODS

(n= 40 )



## area of quality food supplies: PROTEIN OF ANIMAL ORIGIN

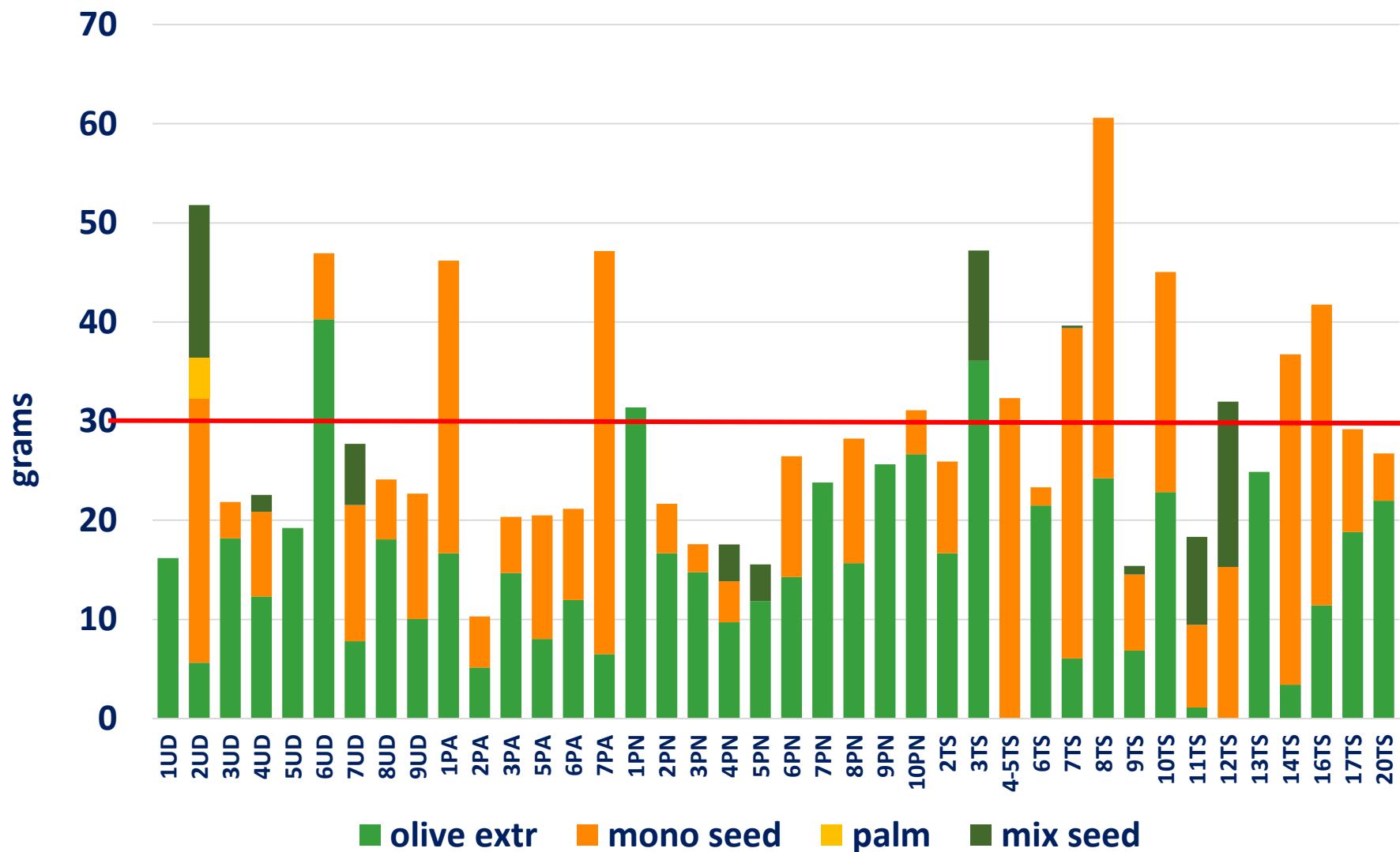
Average provisions grams per week/residents protein from fish, meat, cheese, egg, cured meat (LARN 172g) (n= 40 )



## area of quality food supplies: OIL

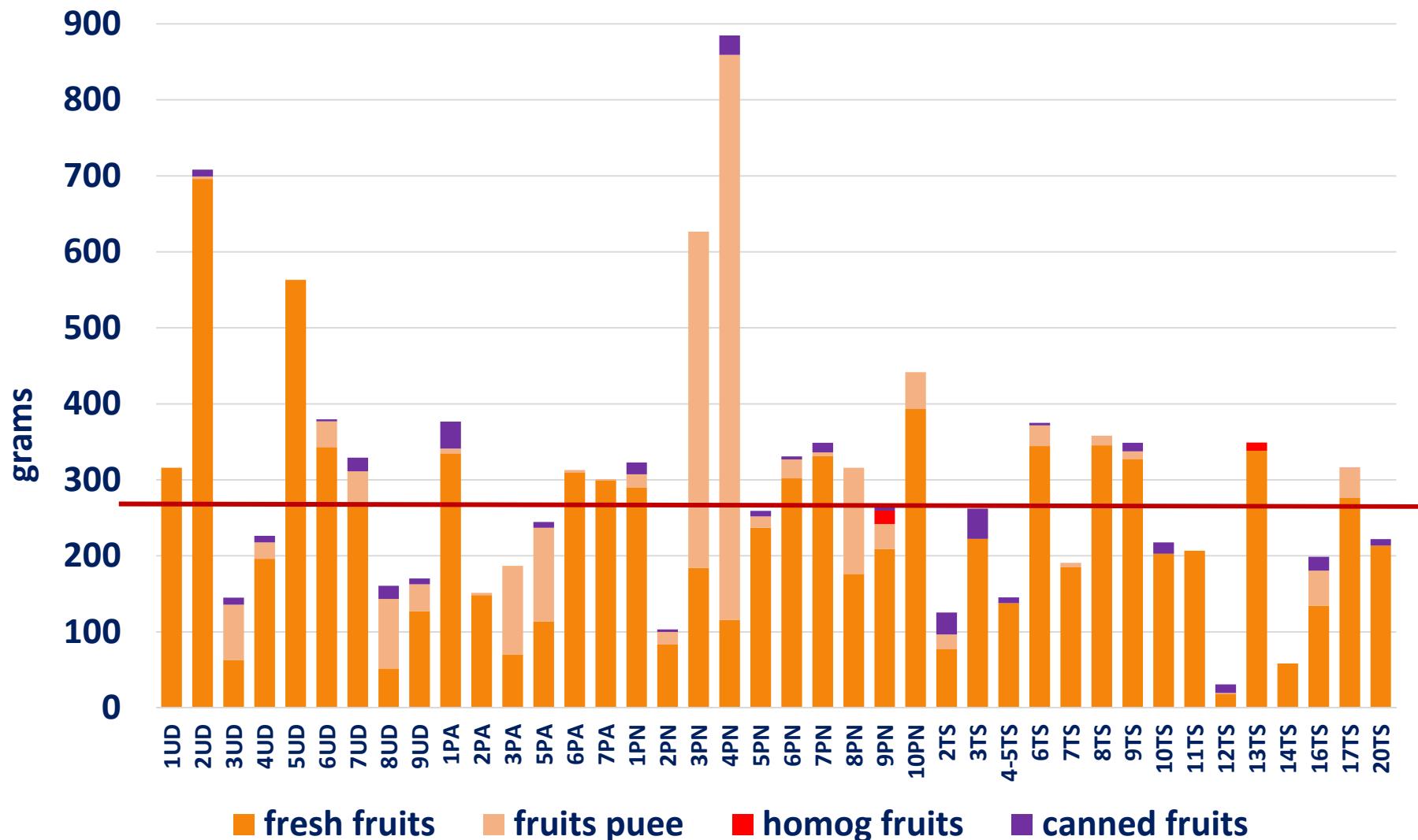
Average provisions grams per day/residents, (LARN: 35 g)

(n= 40 )



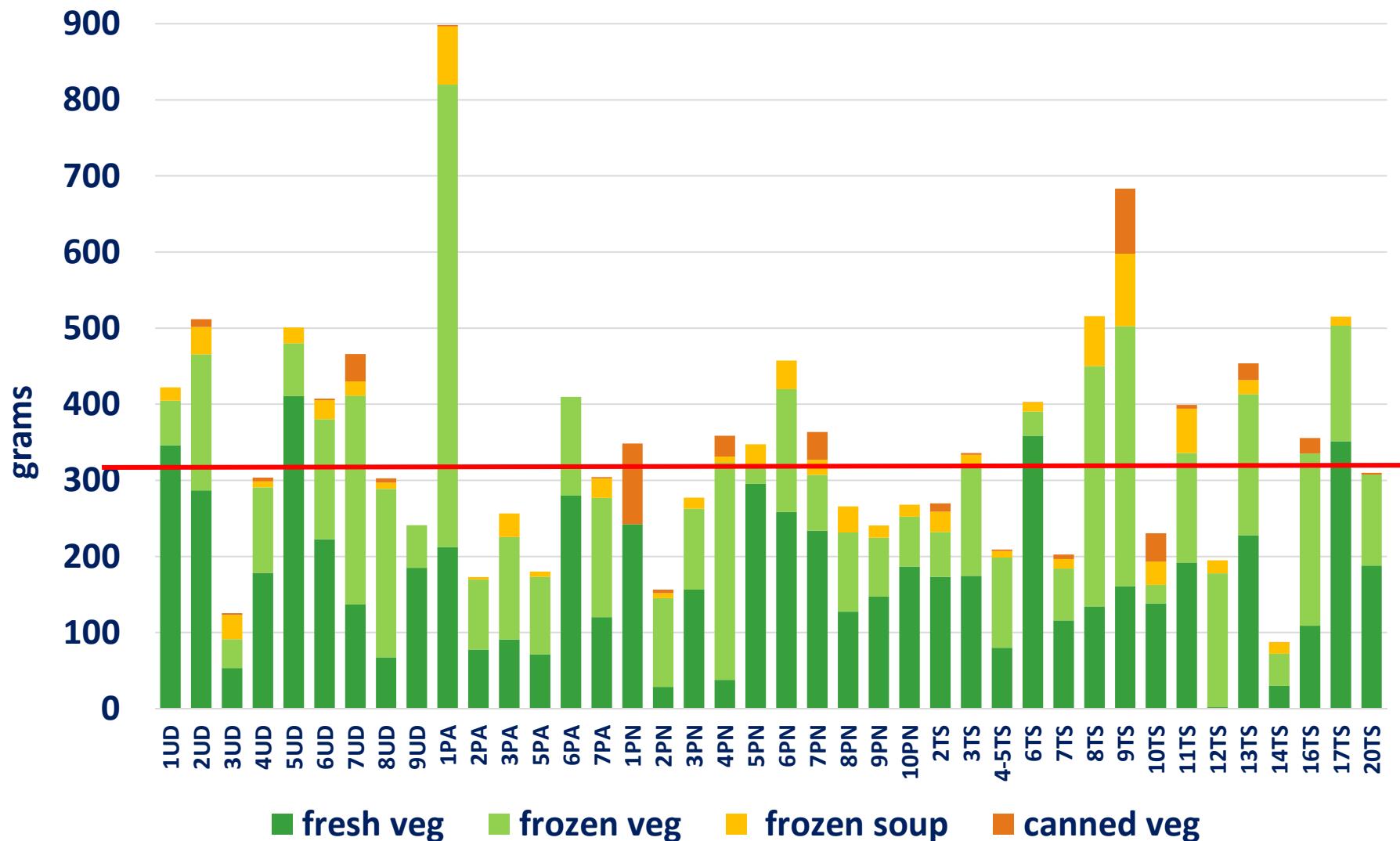
## area of quality food supplies: FRUITS

Average provisions grams per day/residents to net waste, (LARN: 300 g) (n= 40 )

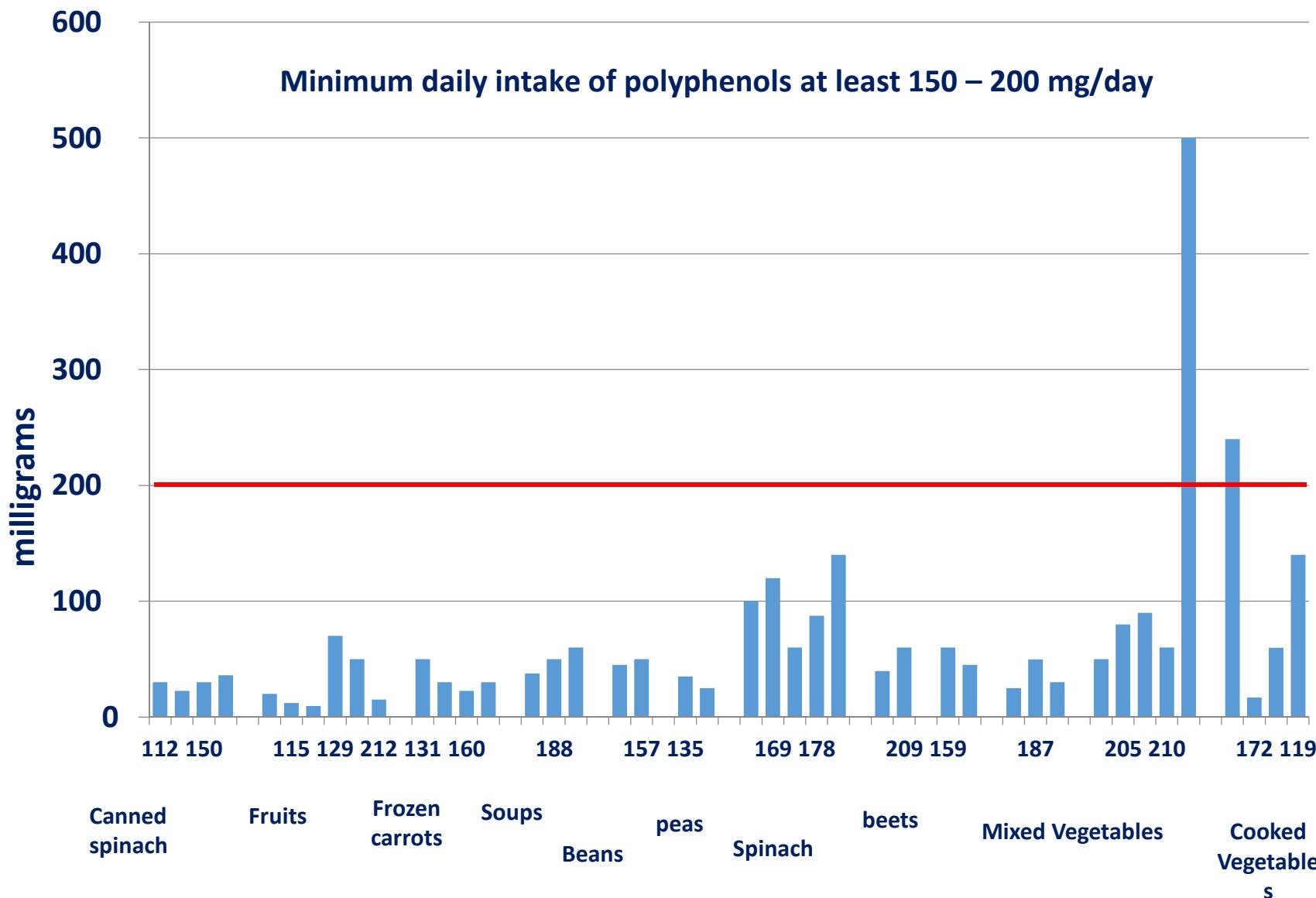


## area of quality food supplies: VEGETABLES

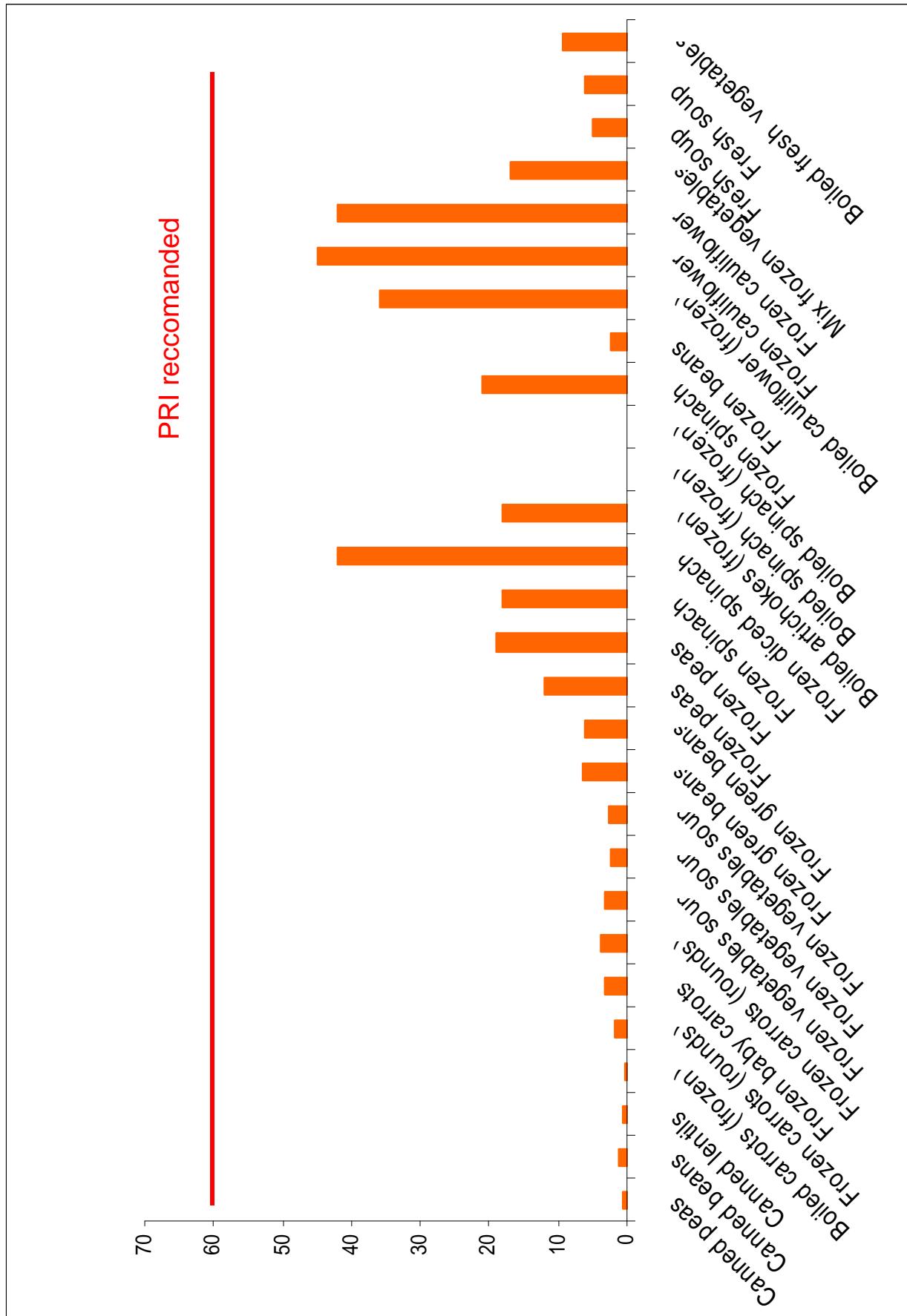
Average provisions grams per day/residents to net waste, (LARN: 360 g) (n= 40 )



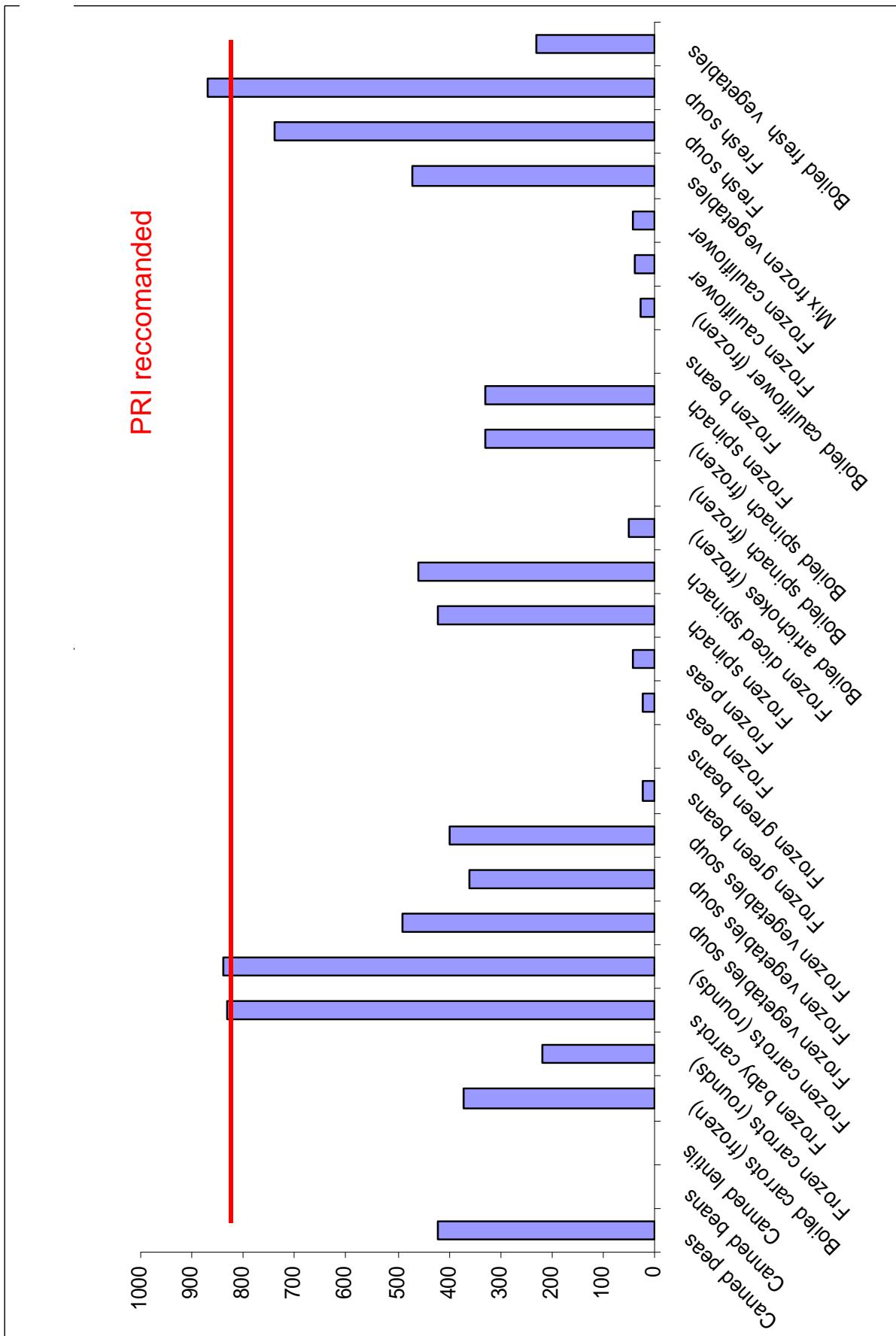
## analytical results: POLYPHENOLS content per portion (mg/por)



## **analytical results: VITAMIN C content (mg/100 g)**



**analytical results: VITAMIN A content (mg/100 g)**

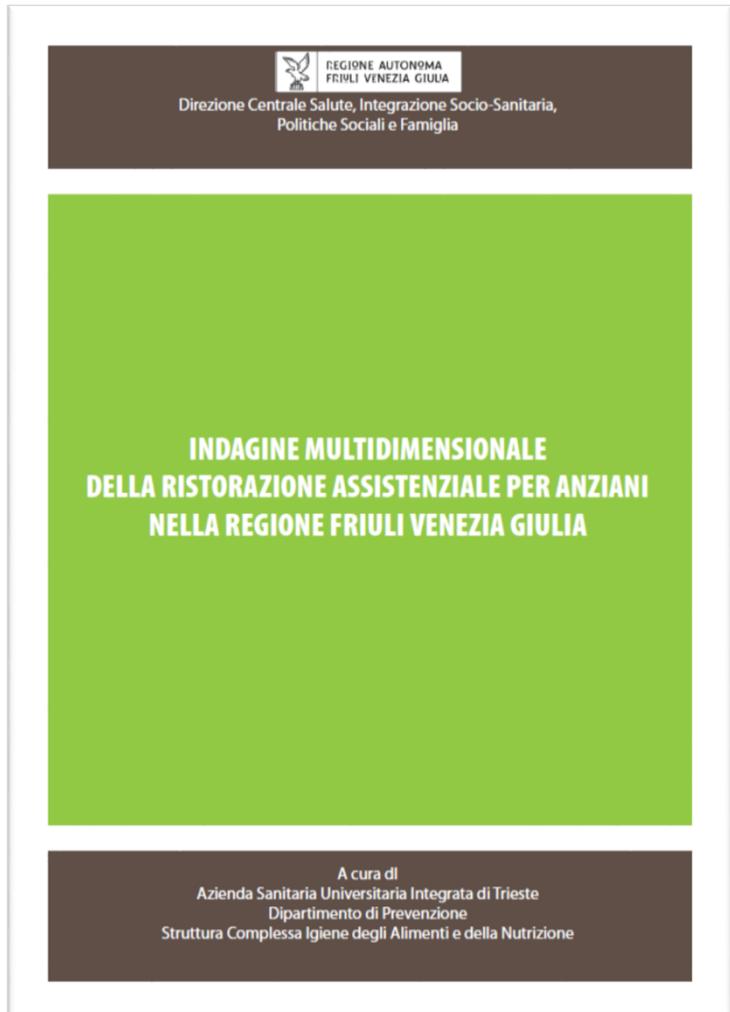


## analytical results: FAT CONTENT – OXIDATION INDEX

	FAT %	reference values FAT % (INRAN)	PAV ( < 5 )
<b>mixed frozen meat beef / pork</b>	45,5	-	<b>10,8</b>
minced beef	15,12	<b>14,02</b>	<b>1,44</b>
Hamburger	40,07	<b>14,02</b>	7,802
Hamburger beef	49,9	<b>14,02</b>	7,578
minced beef	51,3	<b>14,02</b>	5,41
Wurstel	25,49	<b>17,2</b>	<b>9,47</b>
Wurstel	22,41	<b>17,2</b>	5,36
chicken breast	3,07	<b>6,63</b>	<b>0,31</b>
<b>Chicken nuggets</b>	22,10	<b>18,04</b>	<b>14,34</b>

The concluding remarks of “Multidimensional investigation of catering services for senior citizens in the region Friuli Venezia Giulia” state that:

- The sum of the polyphenols potentially assumable with meals, per individual, hardly reaches 150 - 200 mg / day
- This type of nutrition, while satisfying energy needs, **is not sufficiently useful to protect the elderly from oxidative stress**



development of the  
Nutrient Analysis Critical Control Points process in  
welfare canteen





1. The measure of prevention of damage to nutrients coincides with the indications for food safety reported among the prerequisite programs in the “Manual of correct operating practices for collective catering” compiled by Angem and Legacoop and approved by the Ministry of Health.
2. State – Regions Agreement, “Assessment of national criticalities in nutrition and intervention strategies 2016 – 2019” ....promoting and encouraging the adoption of the NACCP process in local prevention structures to promote food and nutrition policies ...

## HACCP

## NACCP

## Main steps

1 conduct a hazards analysis

2 determine the Critical Control Points

3 establish critical limits

4 establish monitoring procedures

5 establish corrective actions

6 establish verification procedures

7 establish record-keeping and documentation procedures



• receiving

• storage

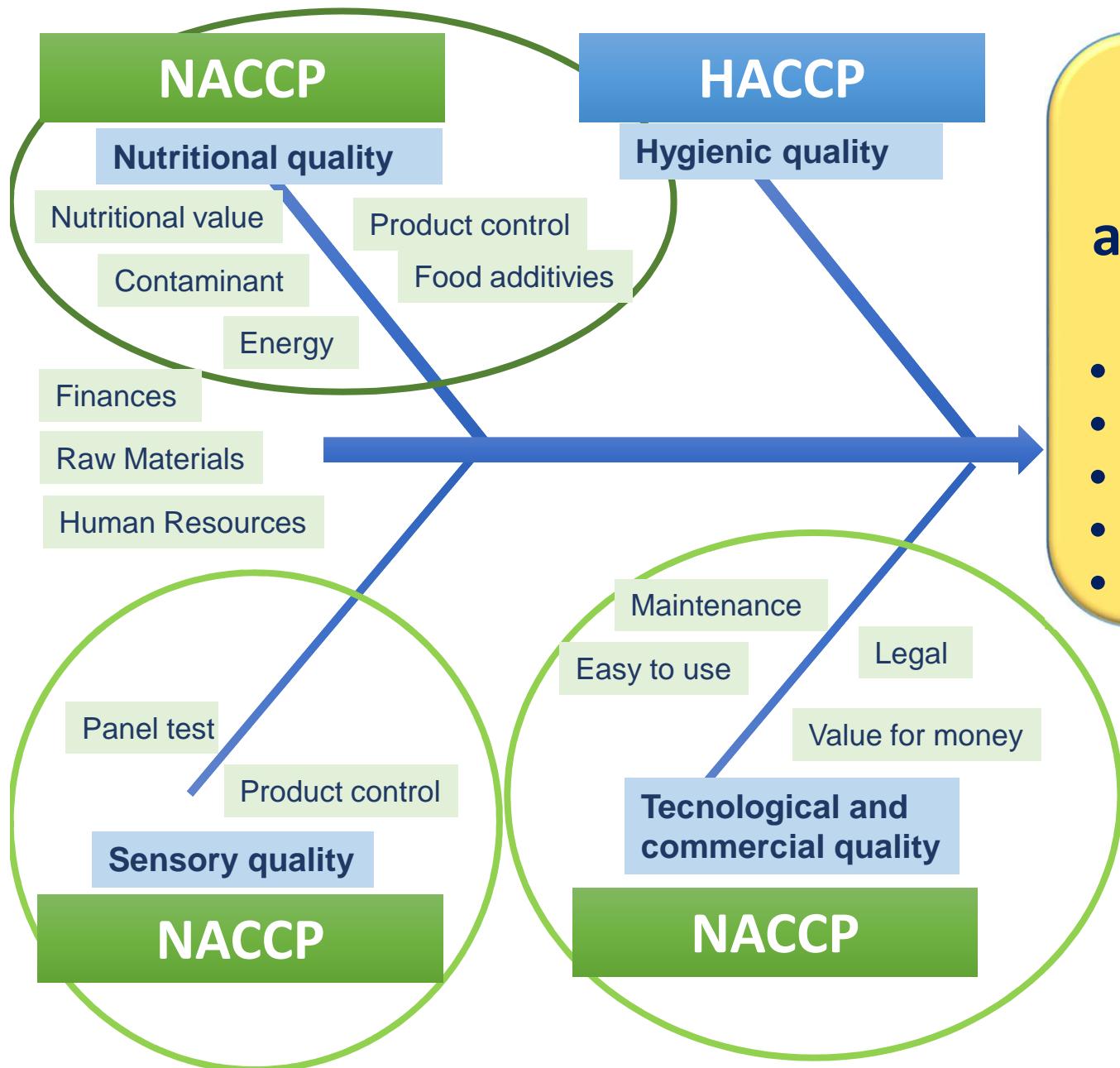
• preparation - cooking

• distribution

physical, chemical or biological hazard

loss of nutrients in the supply chain

Good Nutritional Practices

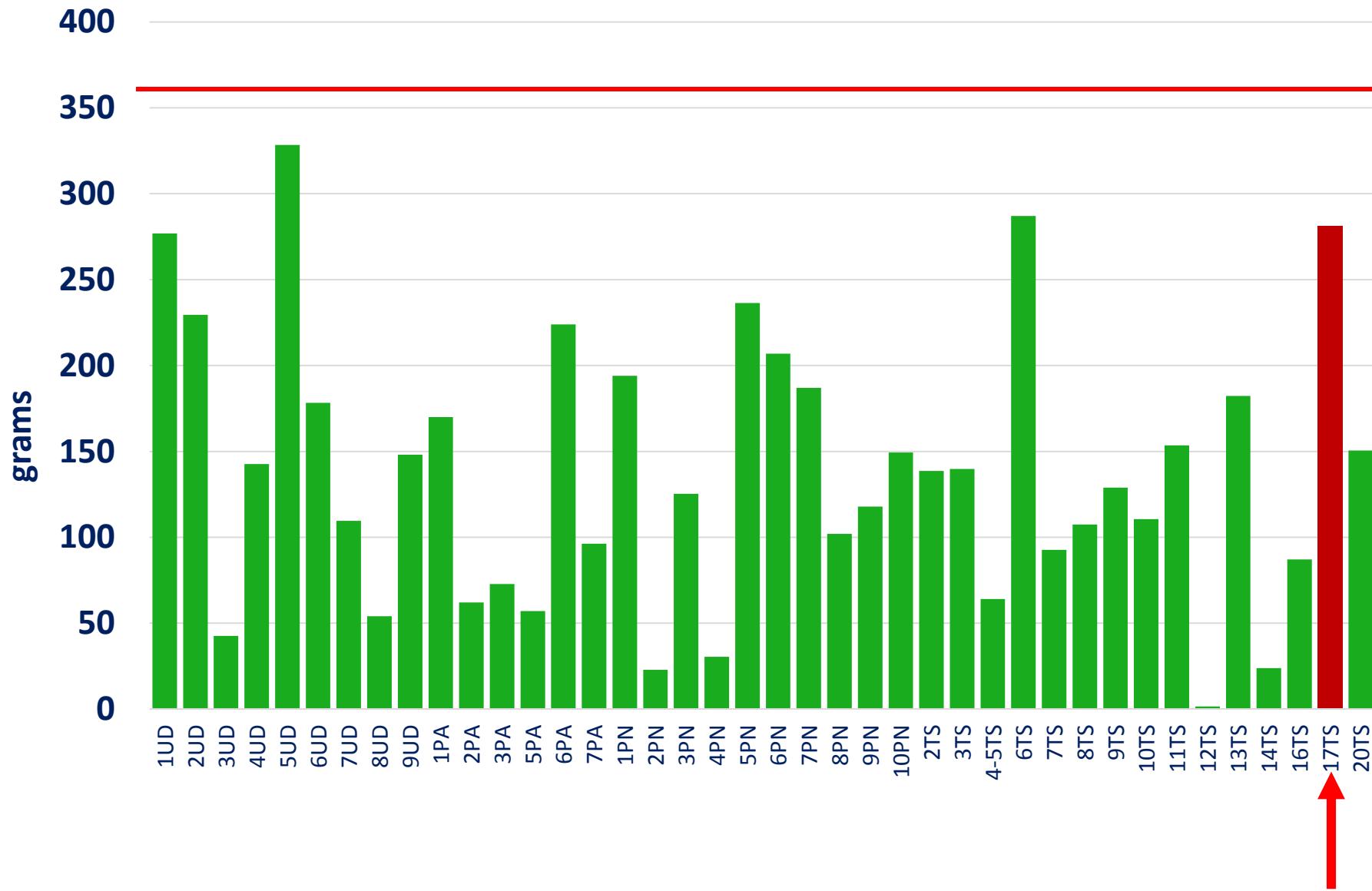


**Total quality management and effectiveness procedures**

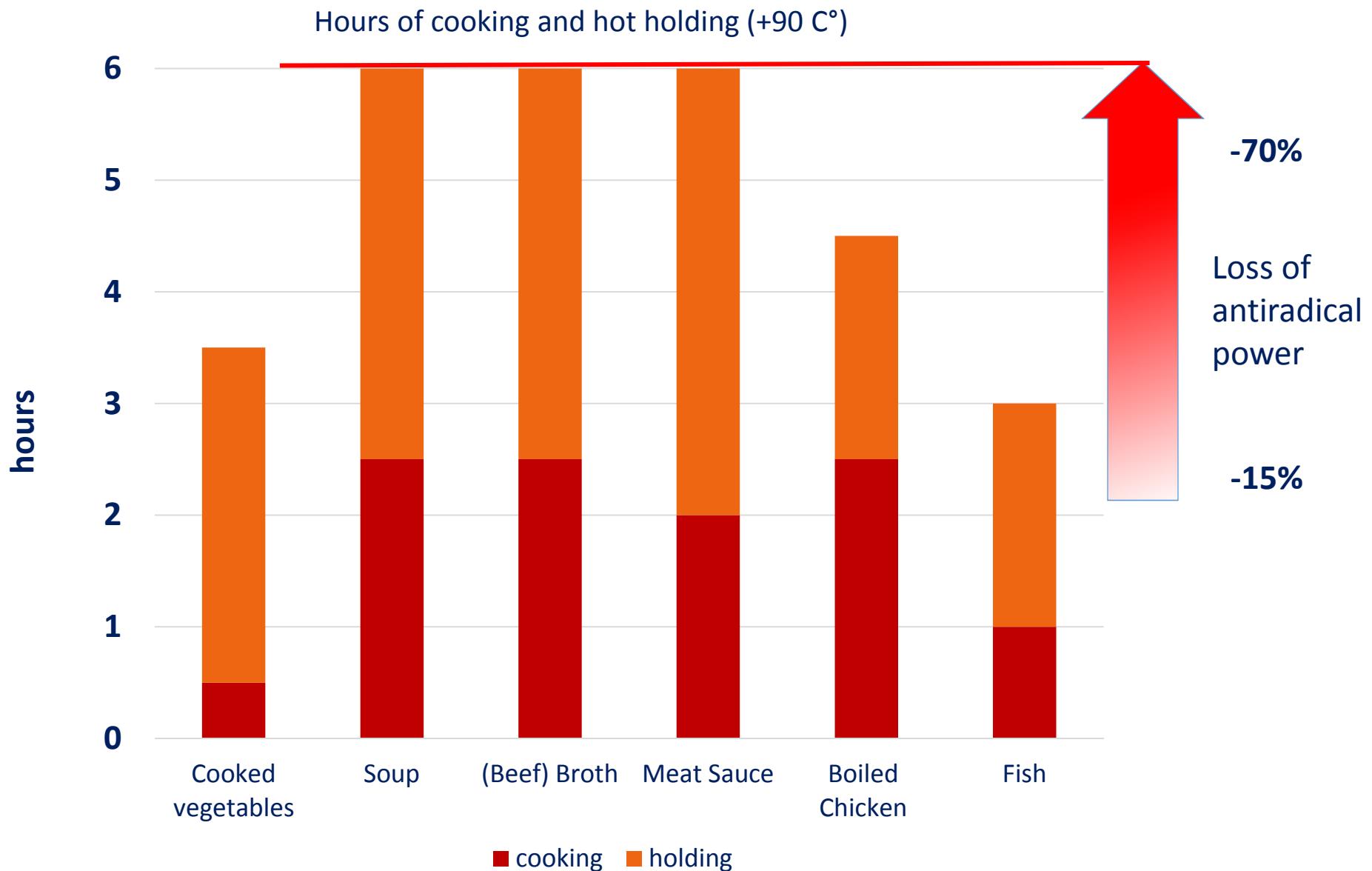
- CCP
- Critical limits
- Monitoring CCP
- Corrective actions
- Applying the system

## step 1 – receiving delivery: FRESH VEGETABLES

Average provisions grams per day/residents to net waste, (LARN: 360 g) (n= 40 )

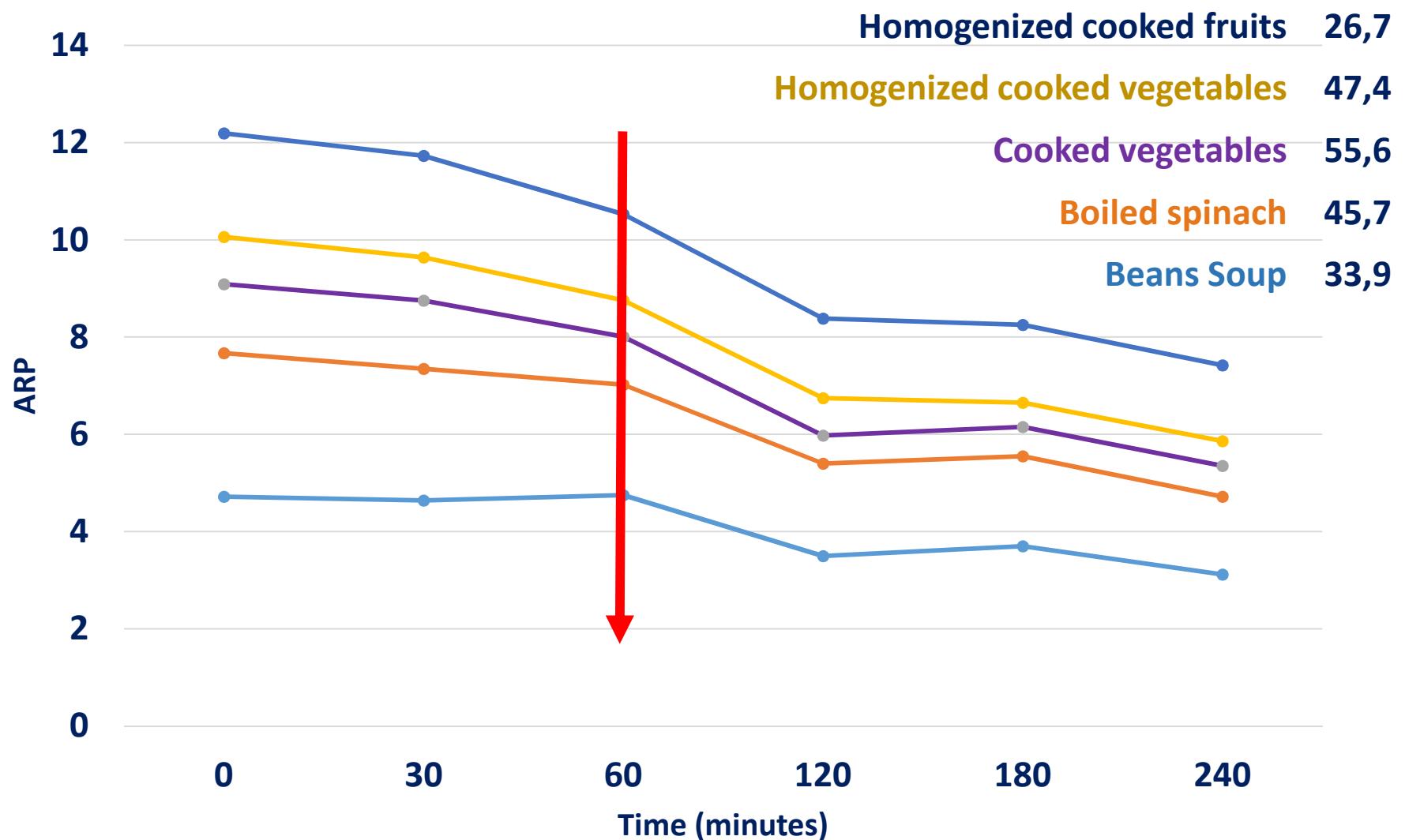


## step 3 - preparation / cooking 17TS NURSING HOME: DINNER



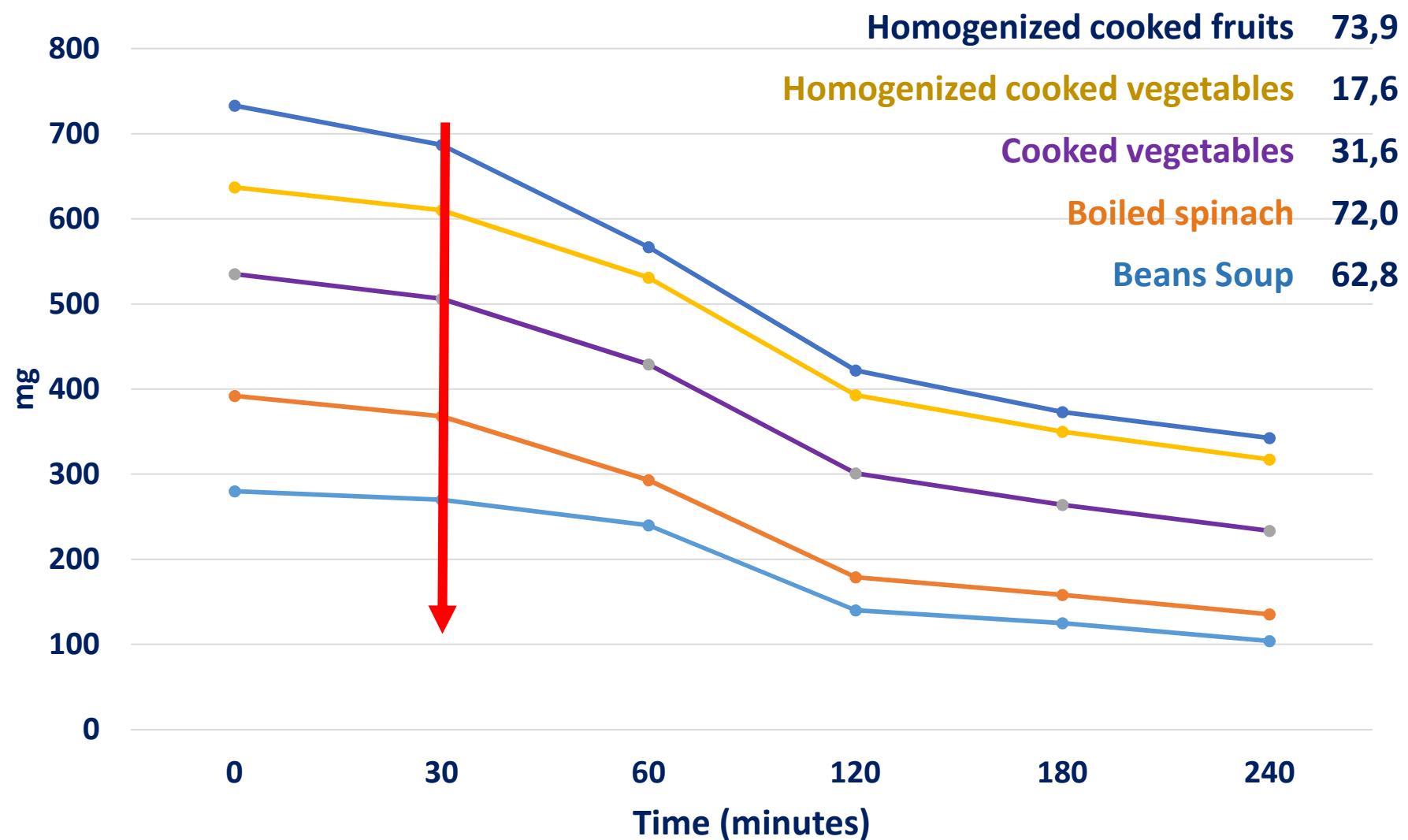
## step 3 - preparation / cooking 17TS NURSING HOME

Hours of hot holding (+90 C°): dinner % LOSS OF ANTIRADICALIC POWER



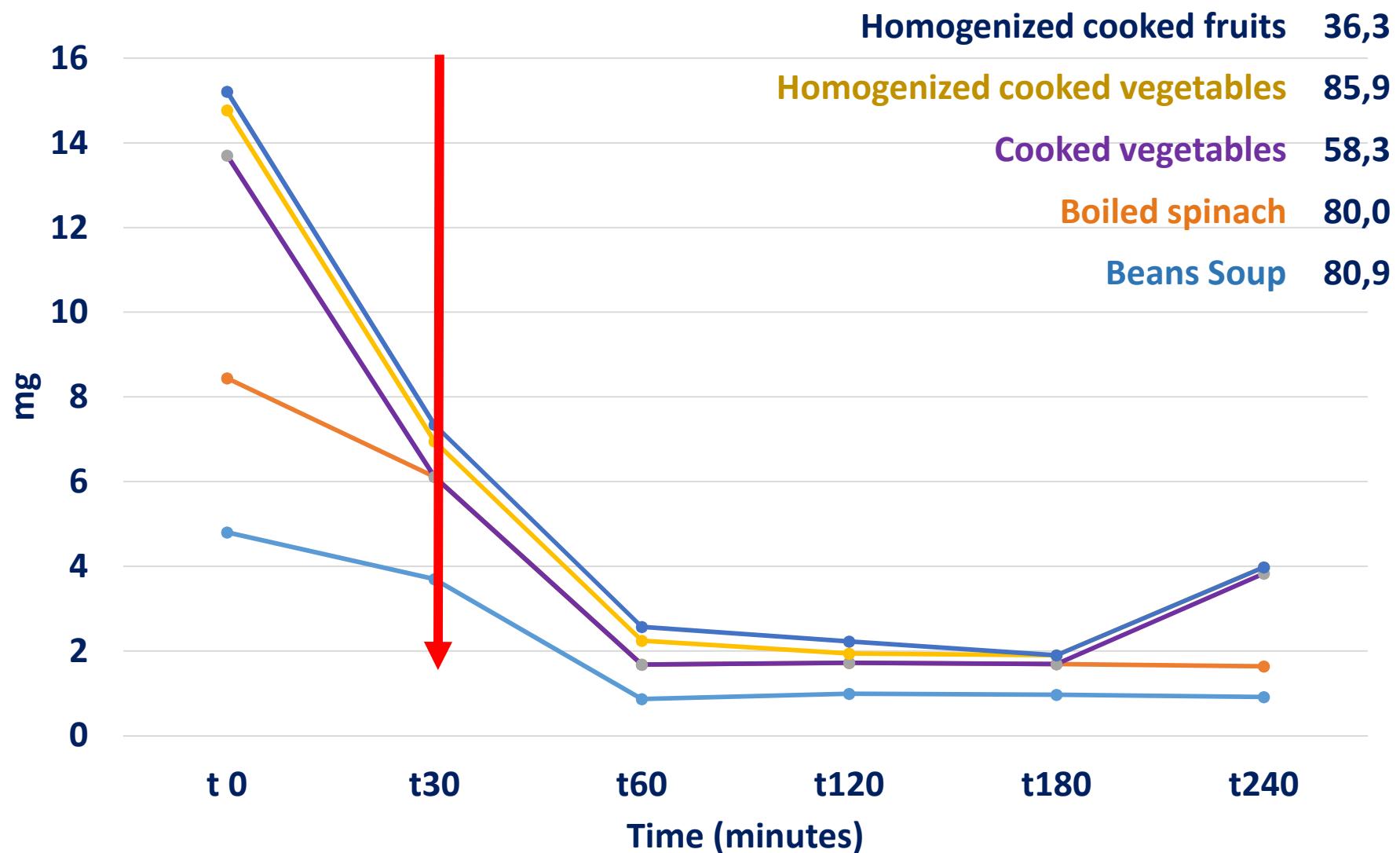
### step 3 - preparation / cooking 17TS NURSING HOME

Hours of hot holding (+90 C°): dinner % LOSS OF POLIPHENOL CONTENT (mg/100 g)

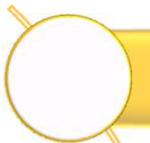


### step 3 - preparation / cooking 17TS NURSING HOME

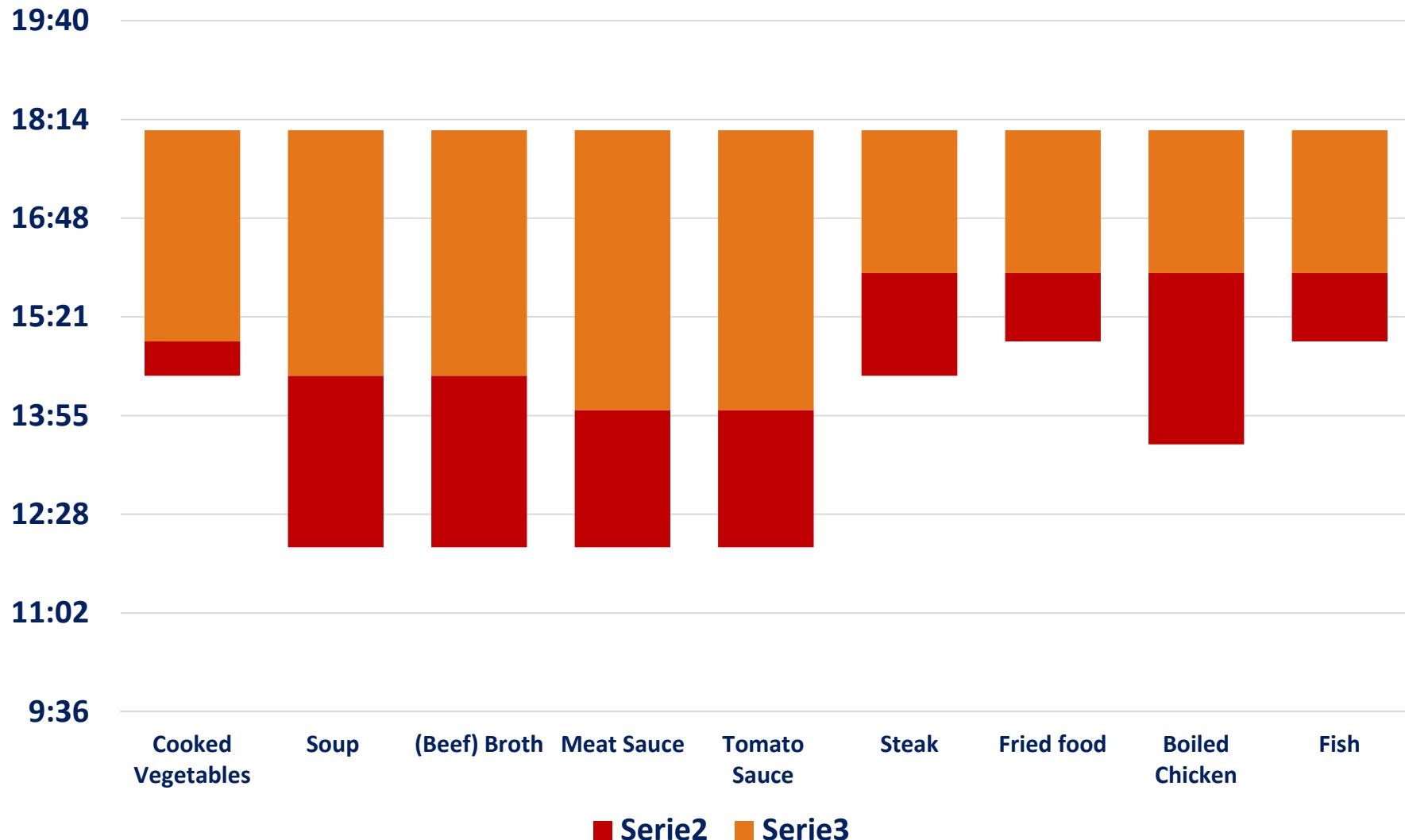
Hours of hot holding (+90 C°): dinner % LOSS OF ASCORBIC ACID CONTENT (mg/100 g)



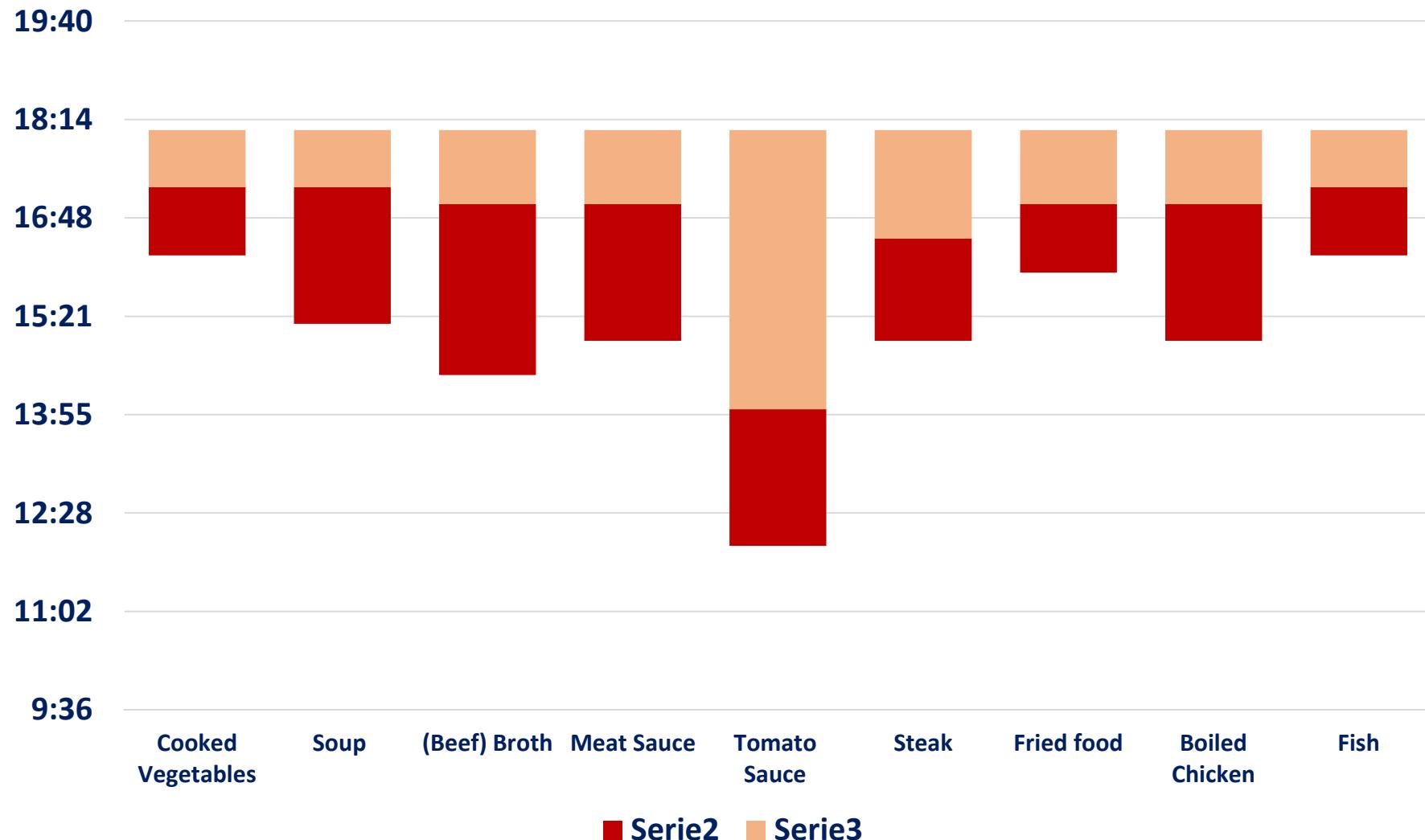
## **new criteria introduced into public tenders to guarantee the total nutritional quality of meals**

-  monitoring the antiradical power of the meals served to residents
-  **defining the production program of the 4 main flow process steps**
-  adequacy of production premises
-  appropriate instrumental equipment
-  **workload**
-  professional qualifications of the workforce
-  nutritional training

## CRITERIA: defining the production program of the 4 main steps step 3 cooking - hot holding DINNER

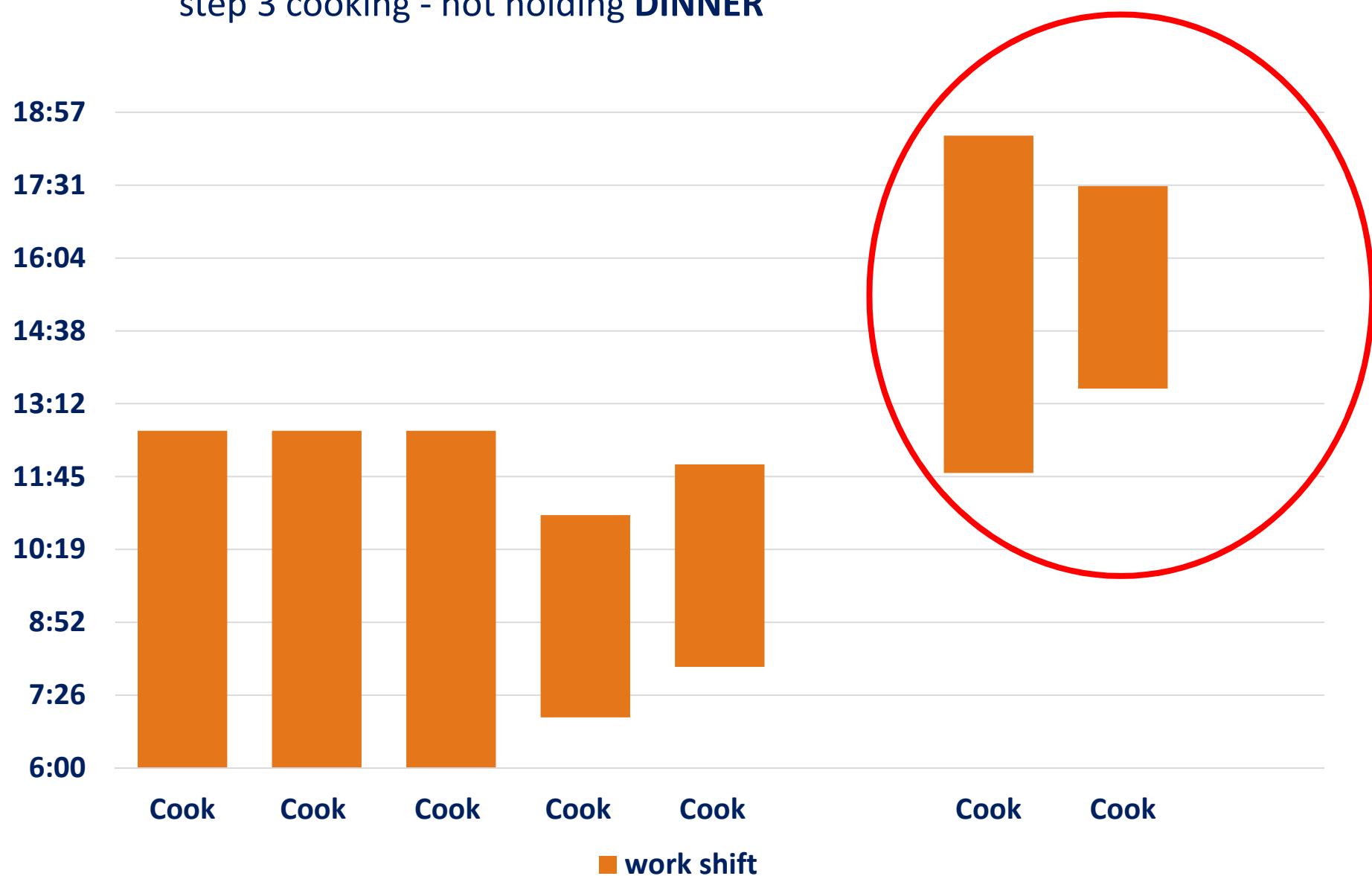


## CRITERIA: defining the production program of the 4 main steps step 3 cooking - hot holding DINNER



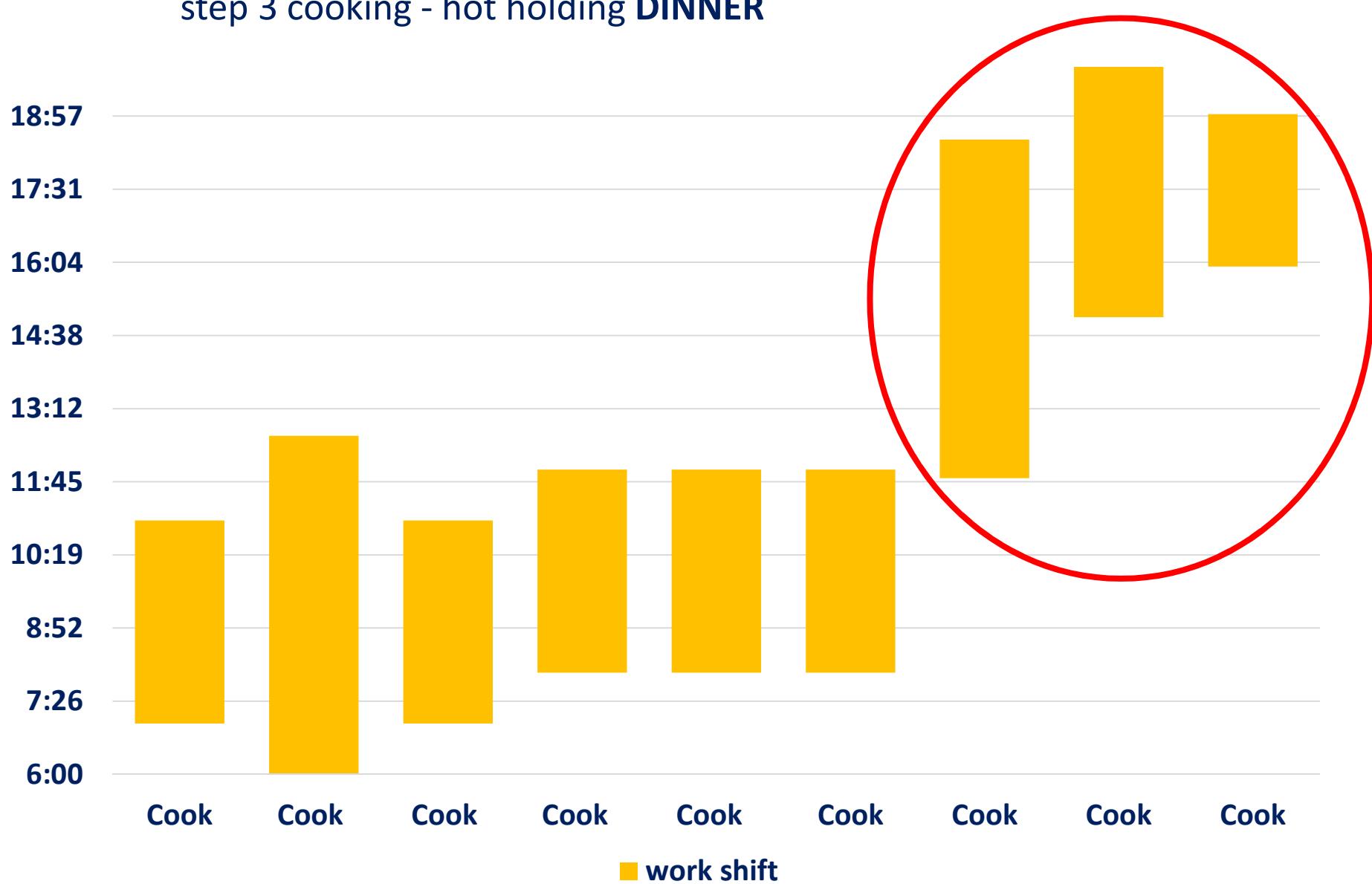
## CRITERIA: workload

### step 3 cooking - hot holding DINNER



## CRITERIA: workload

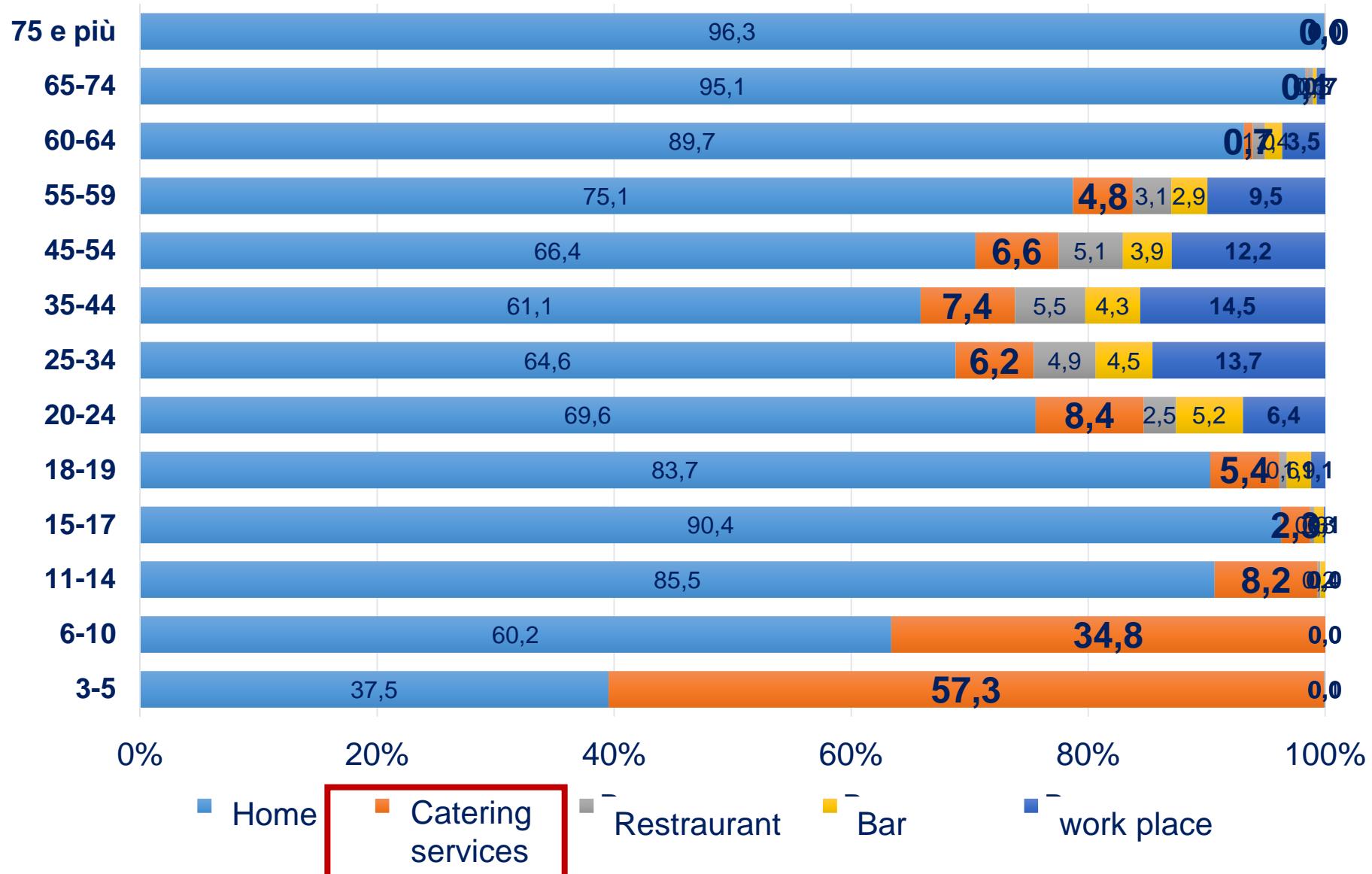
### step 3 cooking - hot holding DINNER



# Application of the Nutrient Analysis Critical Control Points process in catering canteens



**Table 1.1 – People of 3 years of age and over: eating habits and age group– LUNCH**



new procedure to provide the service *Level of Essential Assistance F6:*

**Consultarci for the Procurement Procedure to catering services (CPP) provided by the National Health System**

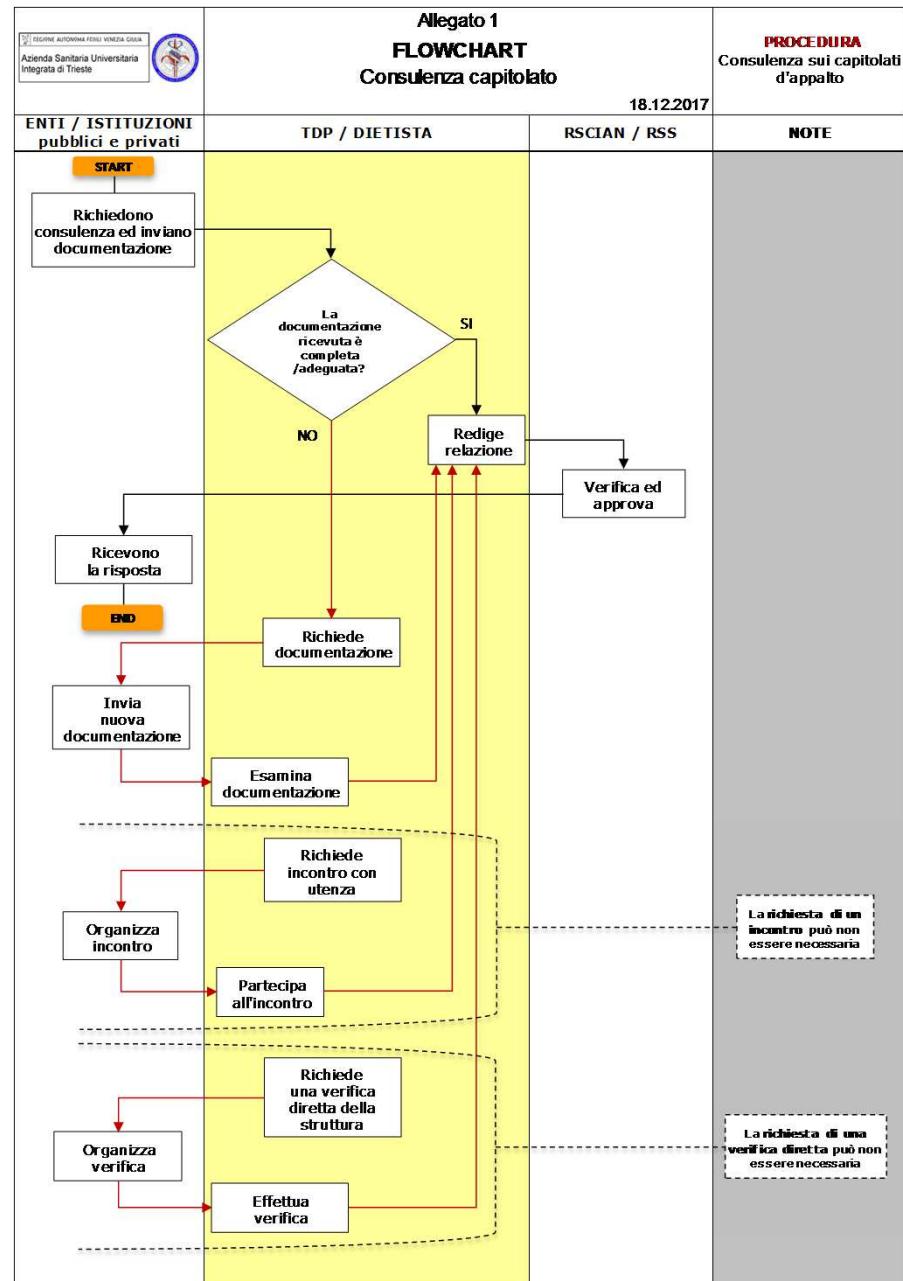
	P-SCIAN-Consulenza capitolati-R00	SCIAN
<b>PROCEDURA</b> Consulenza sui capitolati d'appalto	Data 18.12.2017	Pagina 1 di 3

#### INDICE

1. SCOPO
2. CAMPO DI APPLICAZIONE
3. ABBREVIAZIONI
4. RESPONSABILITÀ
5. MODALITÀ ESECUTIVE
6. REGISTRAZIONI
7. RIFERIMENTI
8. ALLEGATI
9. DOCUMENTI COLLEGATI

N. Revisione	Data	Descrizione	Redazione	Verifica	Approvazione
00	18.12.2017	1a emissione	Direttore SCIAN: Tiziana DEL PIO  Ufficio Certificazione e Accreditamento Giuseppe ROMANO	Ufficio Certificazione e Accreditamento Giuseppe ROMANO	Direttore SCIAN: Tiziana DEL PIO

# The flow chart of *LEA F6*: Consultancy for the procurement procedure to catering services



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To learn more about the 10YFP SPP Programme visions and goals for 2024, read our [Vision Document](#).

**The Principles of Sustainable Public Procurement**

A significant achievement of the SPP Programme is the adoption by the Multistakeholder Advisory Committee of the Sustainable Public Procurement Principles, which were publicly released in March 2015. To learn more about the Principles of Sustainable Public Procurement, click [here](#).

**OUR 10<sup>th</sup> MEMBER**

The 10YFP Sustainable Public Procurement Programme is proud to welcome its 10<sup>th</sup> partner, the European Environmental Bureau. The European Environmental Bureau has joined our network of governments, international organisations, NGOs and experts, working together to enhance the implementation of sustainable public procurement.

**EUROPEAN ENVIRONMENTAL BUREAU**

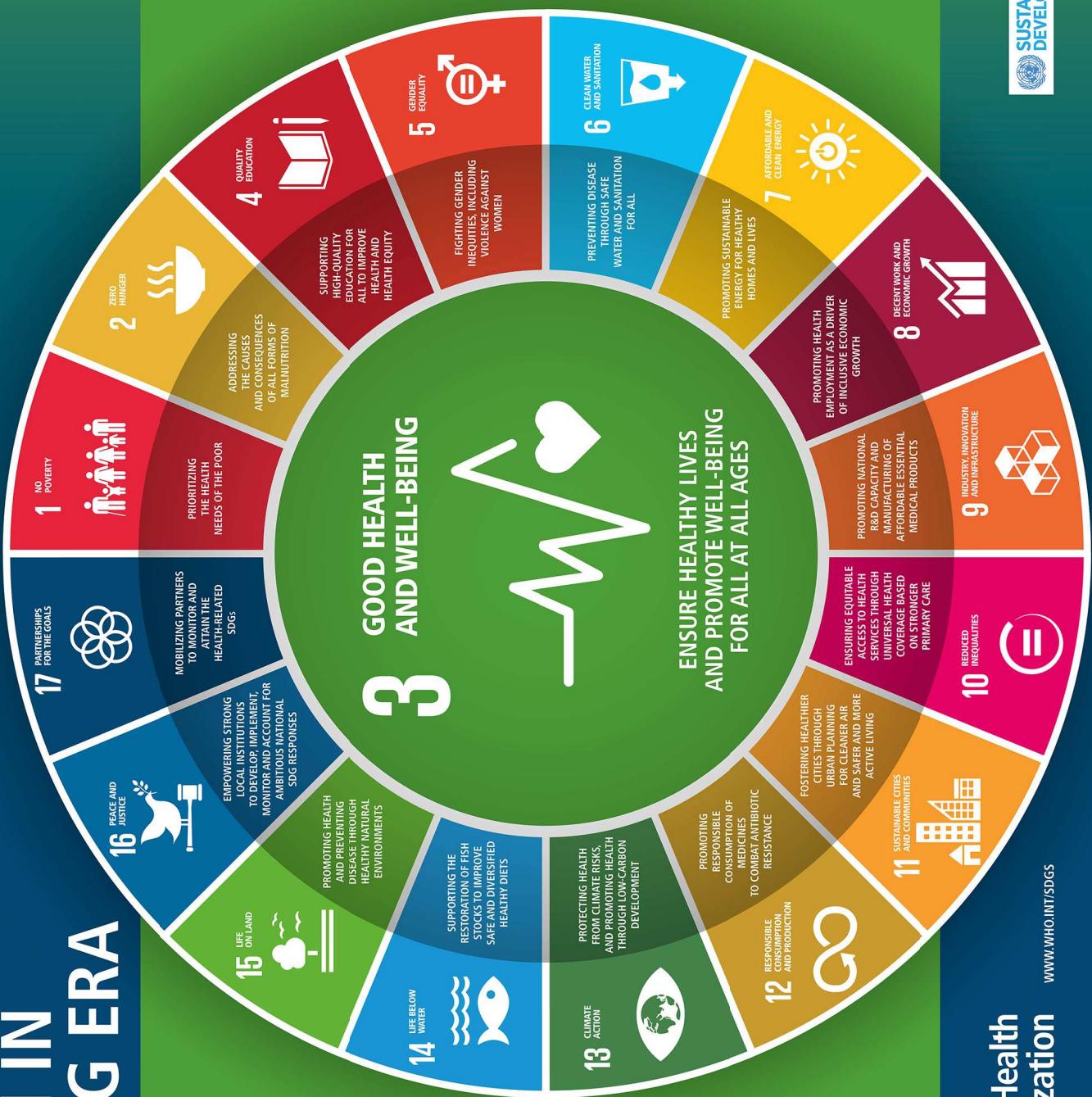
**THE MEMBER DIRECTORY OF THE MULTI-STAKEHOLDER ADVISORY COMMITTEE OF THE 10YFP SPP PROGRAMME**

10YFP SPP Programme's members of the Multi-Stakeholder Advisory Committee

The Multistakeholder Advisory Committee (MAC) of the 10YFP SPP Programme consists of 22 members. Check out the member organizations and their representatives by clicking [here](#).

# HEALTH IN THE SDG ERA



www.who.int/sdgs

SUSTAINABLE DEVELOPMENT GOALS



Thank you