

# Establishment of Proficiency Testing Programs in the Philippines

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PTP

No.0005

## INTRODUCTION

The Department of Science and Technology-Food and Nutrition Research Institute (DOST-FNRI), realized the need to organize affordable, accessible and reliable PT Programs to address the needs of testing laboratories in the Philippines. In 2006, DOST-FNRI started organizing PT Rounds on proximate and mineral analyses using food matrices commonly exported by the country (Portugal et al, 2011, 2013). To enhance its credibility and international recognition as food PT provider, the FNRI-Proficiency Testing Laboratory (FNRI-PTL) applied for ISO/IEC 17043:2010 accreditation in August 2012 to the Thailand Department of Science and Service, Bureau of Laboratory Accreditation (DSS, BLA) and was awarded accreditation on February 2013, which is the first in the Philippines, for its PT round on proximate (moisture, fat, protein ash) and mineral (sodium, iron, calcium) analyses in infant formula. FNRI-PTL continually seeks to extend its assistance to the food industries and testing laboratories by providing more internationally-acceptable and low cost PTs while maintaining its integrity and credibility as the first food PT Provider in the country and continuously expanding the scope of its accreditation. To date, the laboratory is accredited to five (5) different matrices (infant formula, milk powder, wheat flour, corn-based snack food and powdered concentrate) for nutrition labeling parameters. *The FNRI-PTL aims to provide a venue to promote analytical quality assurance measures in order for Philippine testing laboratories to be globally competitive.*

## METHODOLOGY

### REGULAR PROVISION OF PROFICIENCY TESTING

Proficiency test item preparation

- . Infant Formula (FNRI PT 11-01)
- . Milk Powder (FNRI PT 12-01)
- . Wheat Flour (FNRI PT 14-01)
- . Corn-based Snack Food (FNRI PT 14-02)
- . Powdered concentrate (FNRI PT 15-01)
- . Infant Formula (FNRI PT 16-01)

Conduct of Proficiency Testing

- Homogeneity and Stability Testing
- Distribution of proficiency test items to PT Participants
- Analysis of test item and submission of results
- Statistical evaluation of results and performance evaluation
- Distribution of Final PT Report and Certificate of Participation

Conduct of PT Seminar with participants



Development of RM

- Establishment of assigned value from PT Round
- Preparation of Certificate of Analysis
- Stability testing analysis of surplus RMs from PT

### ISO/IEC 17043:2010 Accreditation and Expansion of Scope

Establishment of ISO/IEC 17043:2010 Quality Management System (QMS)

- Document Review
- Internal Audit
- Management Review

Evaluation of Non-Conformity Audit Findings and Corrective Actions

Surveillance Audit by Assessors from BLA, DSS

Issuance of Certificate of ISO/IEC 17043:2010 Accreditation with Expanded Scope

## RESULTS

### Improvement in the PT Provisions

FNRI-PTL continuously took effort to organize PT Rounds using different food matrices, namely infant formula in 2011 and 2016, milk powder in 2012, wheat flour and corn-based snack food in 2014, and powdered concentrate in 2015. The choice of these matrices and the measurands included in the PT Rounds were based on the suggested food matrix and the basic analytical capability of the local testing laboratories and from the mandatory nutrition labeling requirements by Food and Drug Administration (FDA).

One indicator of a successful PT scheme is the issuance of performance score and it has always been a challenge for the PT provider. In 2015, the problem regarding non-issuance of performance scores was solved through the provision of z'-scores, wherein high uncertainty of the assigned value was taken into account, thus making it possible to evaluate the performance of PT participants.

### Improvement in the Participants' Performance

The provision of FNRI PT 11-01 and 16-01 was a fulfillment of the five (5)-year-frequency requirement of a PT scheme indicated in the FNRI-PTL's ISO/IEC 17043:2010 QMS. Using the same matrix and same  $\sigma_{PT}$  for evaluation of results, it can be shown that there is an improved performance of laboratories that participated in both PT Rounds on Infant Formula for proximate (moisture, fat, protein and ash) analyses (Fig.1).

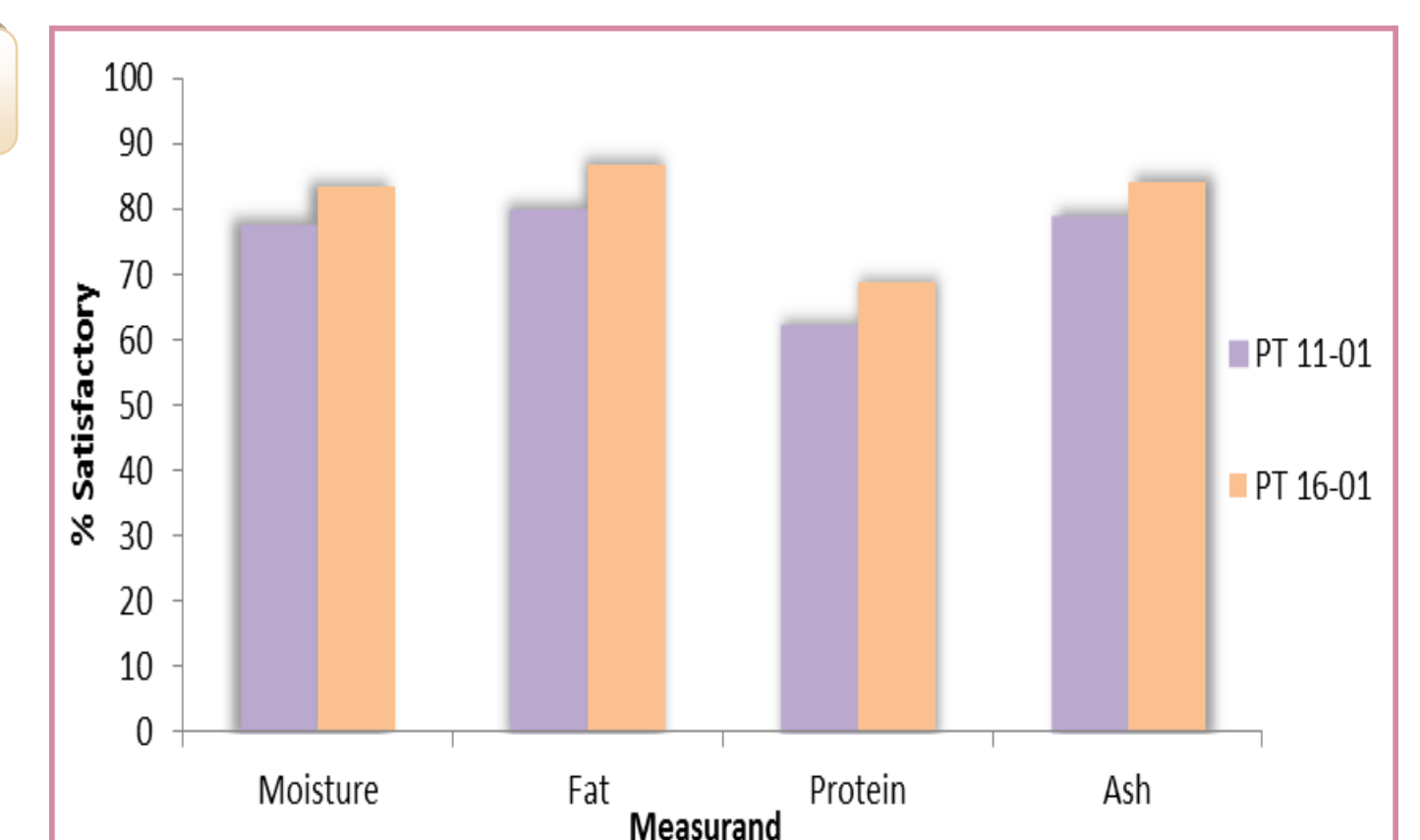


Fig 1. Percentage "satisfactory" performance of common participants (18 for moisture; 15 for fat; 16 for protein; 19 for ash) for PT rounds on infant formula

### Developed Reference Material

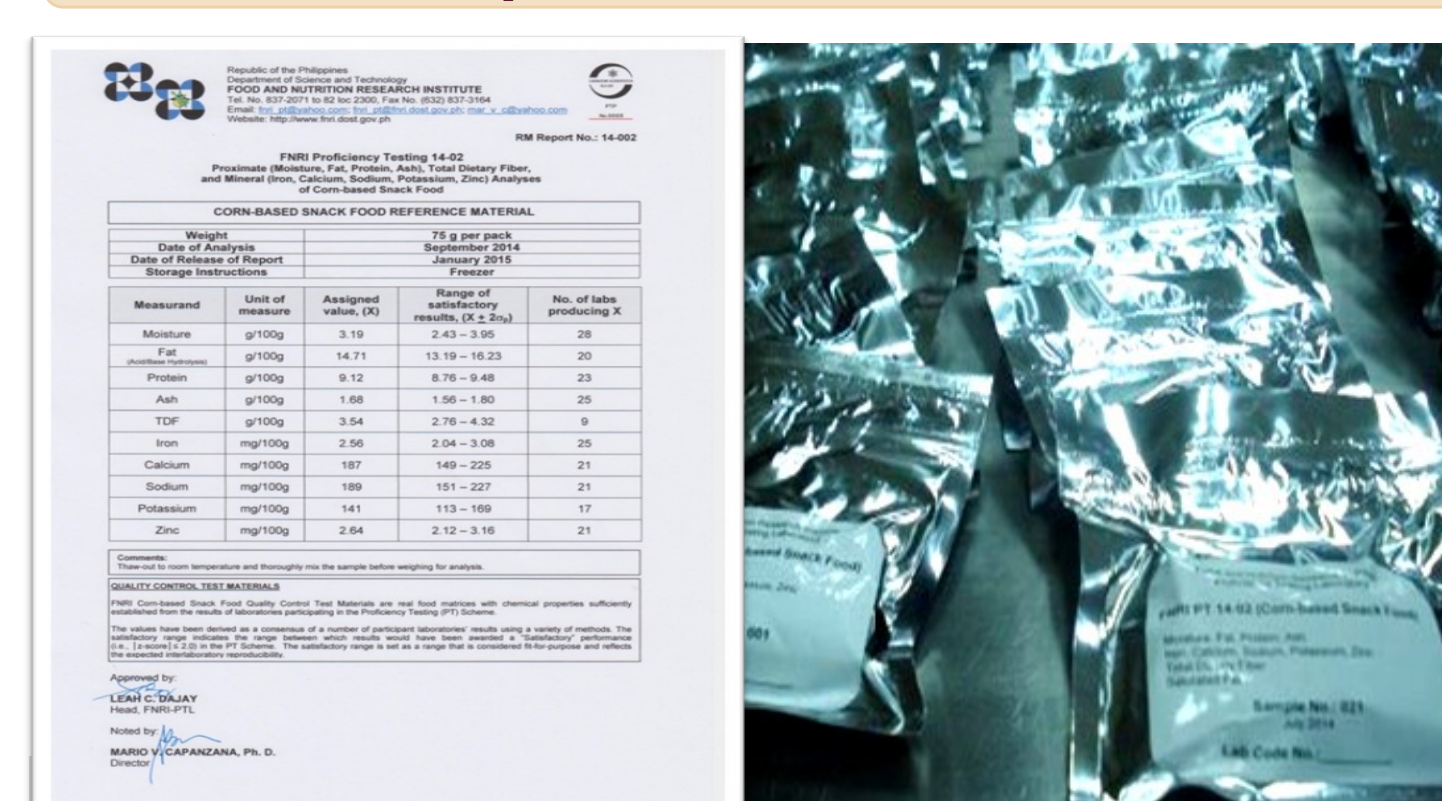


Fig 2. Certificate of Analysis (left photo) for the developed RM (right photo) from surplus proficiency test items (stability is monitored for 6.0, 12.0, 18.0 mos, etc.)

### ISO/IEC 17043:2010 Accreditation: Sustainability and Expansion of Scope



Scope of FNRI-PTL ISO 17043:2010 Accreditation as of March 2017:  
(1) Infant Formula (proximate and minerals); (2) Milk Powder (proximate and minerals); (3) Wheat Flour (proximate, TDF and minerals); (4) Corn-based snack food (proximate, TDF, minerals and saturated fat); and (5) Powdered concentrate (total sugar, vitamin C and minerals)

Fig 3. FNRI-PTL Certificate of ISO/IEC 17043:2010 Accreditation as PT Provider

## CONCLUSION

FNRI-PTL remained as the only PT Provider in the Philippines since 2012. It has maintained its ISO/IEC 17043:2010 accreditation through regular review of its quality management system and objectives, and has continually expand its scope of accreditation through PT Provisions on new matrices and parameters to cater the needs of Philippine testing laboratories.

The improved performance of the participant laboratories in the two (2) PT Rounds in infant formula may serve as an independent evidence reassuring their customers or accreditors that their procedures, equipment, and other laboratory operations are in control. Over a period of time, the laboratory thus gains satisfaction in the knowledge that they have improved or maintained a level of competence comparable with other testing laboratories in the Philippines.

## RECOMMENDATIONS

Continuous improvement in PT Provisions poses a strong encouragement for laboratories to continuously participate in PT. While FNRI-PTL should continuously provide affordable and quality food PT Rounds that will assist Philippine laboratories in generating accurate, reliable and globally acceptable food data, it is recommended that the PT provider and the participants should monitor their performance scores over time to spot evidences for consistent systematic errors or poor long-term precision.

## REFERENCES:

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