

PHILIPPINE NATIONAL STANDARD

PNS/PAES 169:2015
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ICS 65.060.10

**Agricultural machinery – Spike tooth harrow for
walking type agricultural tractor – Specifications**



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National Foreword

The Philippine Agricultural Engineering Standards PAES 169:2015, Agricultural machinery – Spike tooth harrow for walking type agricultural tractor – Specifications was approved for adoption as Philippine National Standard by the Bureau of Philippine Standards upon the recommendation of the Agricultural Machinery Testing and Evaluation Center (AMTEC) and the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (PCAARRD-DOST).

PHILIPPINE AGRICULTURAL ENGINEERING STANDARD PNS/PAES 169:2015
Agricultural Machinery – Spike Tooth Harrow for Walking Type Agricultural Tractor
– Specifications

Foreword

The formulation of this national standard was initiated by the Agricultural Machinery Testing and Evaluation Center (AMTEC) under the project entitled “Development of Standards for Rice Production and Postproduction Machinery” which was funded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) of the Department of Science and Technology (DOST).

This standard has been technically prepared in accordance with PAES 010-2 – Rules for the Structure and Drafting of International Standards.

The word “shall” is used to indicate mandatory requirements to conform to the standard.

The word “should” is used to indicate that among several possibilities one is recommended as particularly suitable without mentioning or excluding others.

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1 Scope

This standard specifies the requirements for the manufacture and performance of spike tooth harrow hitched to a walking type agricultural tractor.

2 References

The following normative document contains provisions, which, through reference in this text, constitute provisions of this National Standard:

AWS D1.1:2000 Structural Welding Code - Steel

PNS/PAES 106:2000 Agricultural Machinery – Soil Tillage and Equipment – Terminology

PNS/PAES 170:2015 Agricultural Machinery – Spike Tooth Harrow for Walking Type Agricultural Tractor – Methods of Test

3 Definitions

For the purpose of this standard, the definitions given in PNS/PAES 106:2000 and the following definitions shall apply:

3.1

field efficiency

ratio between the productivity of a machine under field conditions and the theoretical maximum productivity

3.2

harrowing

operation which breaks the clods, levels and makes the soil ready for planting

3.3

main frame

part of the spike tooth harrow that holds the teeth

3.4

secondary tillage implement

implement used for tilling the soil to a shallower depth than primary tillage implements, provide additional pulverization, mix pesticides and fertilizers into the soil, level and firm the soil, close air pockets, and eradicate weeds

3.5

spike tooth harrow

comb harrow

peg tooth harrow

secondary tillage implement consisting of long spikes that break the soil clods after plowing (Figure 1)

3.6

tooth

tine

part of the implement that engages with the soil during operation (Figure 1)

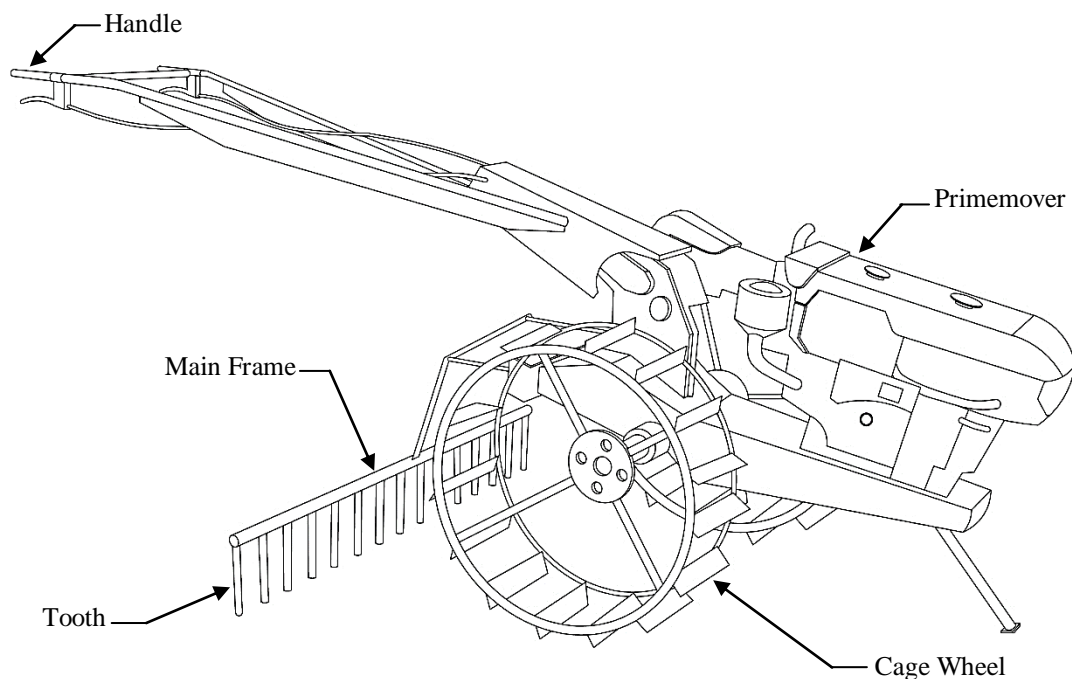


Figure 1 - Spike tooth harrow hitched to a walking type agricultural tractor

4 Principle of Operation

The spike tooth harrow shall be hitched to a two wheel tractor. After being transported to the field, the implement shall be lowered to the soil. Trailing spike tooth harrow shall be towed by the tractor to cut through the soil.

5 Fabrication Requirements

5.1 The spike tooth harrow shall be generally made of steel.

5.2 All welded parts shall be in accordance with the criteria set in American Welding Society (AWS) D1.1:2000.

5.2.1 There shall be no crack on welded area.

5.2.2 There shall be fusion between adjacent layers of weld metal and base metal.

5.2.3 Welded joints shall not be less than 4 mm size fillet weld.

5.2.4 Undercut shall not exceed 2 mm for any length of weld.

6 Performance Requirements

6.1 There shall be uniform surface consistency after harrowing.

6.2 The spike tooth assembly shall be intact after the test.

6.3 During operation, the spike tooth harrow shall not be detached from the tractor.

6.4 The spike tooth harrow shall be able to pass through obstructions in the soil.

6.5 The spike tooth harrow shall be easy to hitch and unhitch from the tractor linkages.

7 Safety, Workmanship and Finish

7.1 The spike tooth harrow shall be painted and shall have a rust-free finish.

7.2 The spike tooth harrow shall be free from manufacturing defects.

8 Warranty for Construction and Services

8.1 One (1) year warranty on services, in accordance to the manufacturer's warranty policy, shall be provided. This shall start upon the acceptance of the spike tooth harrow by the end user.

8.2 There shall be no breakdown of its components under normal use within one (1) year from acceptance of the spike tooth harrow by the end-user, in accordance to the manufacturer's warranty policy.

9 Testing

Spike tooth harrow for walking type agricultural tractor shall be tested in accordance with PNS/PAES 170:2015-Agricultural Machinery: Spike Tooth Harrow for Walking Type Agricultural Tractor – Methods of Test.

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