

# Calibration of Portable Scales

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2018 Meter Technician Training School

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# Scale Calibration Requirements



- **All scales must be calibrated at least once every 12 months**
- **Calibrated to:**
  - **2% accuracy on single weight**
  - **3% accuracy on two consecutive weights**
- **Data is reported to QCS as part of annual field service audit**

# Scale Calibration Requirements

Portable Scale Calibration Readings (Imperial - Pounds)

Reference Weight	Calibrate 1X	Calibrate 2X	Repair or Remove
			42 5.0% 52 4.0%
			41.9 4.8% 51.9 3.8%
			41.8 4.5% 51.8 3.6%
		31.7 5.7%	41.7 4.3% 51.7 3.4%
		31.6 5.3%	41.6 4.0% 51.6 3.2%
		31.5 5.0%	41.5 3.8% 51.5 3.0%
		31.4 4.7%	41.4 3.5% 51.4 2.8%
	21.3 6.5%	31.3 4.3%	41.3 3.3% 51.3 2.6%
	21.2 6.0%	31.2 4.0%	41.2 3.0% 51.2 2.4%
	21.1 5.5%	31.1 3.7%	41.1 2.8% 51.1 2.2%
	11 10.0%	21 5.0%	31 3.3%
	10.9 9.0%	20.9 4.5%	30.9 3.0%
	10.8 8.0%	20.8 4.0%	30.8 2.7%
	5.7 14.0%	10.7 7.0%	20.7 3.5%
	5.6 12.0%	10.6 6.0%	20.6 3.0%
1.5 50.0%	2.5 25.0%	5.5 10.0%	10.5 5.0%
1.4 40.0%	2.4 20.0%	5.4 8.0%	10.4 4.0%
1.3 30.0%	2.3 15.0%	5.3 6.0%	10.3 3.0%
1.2 20.0%	2.2 10.0%	5.2 4.0%	10.2 2.0%
1.1 10.0%	2.1 5.0%	5.1 2.0%	10.1 1.0%
1.0 0.0%	2.0 0%	5.0 0%	10.0 0%
0.9 -10.0%	1.9 -5.0%	4.9 -2.0%	9.9 -1.0%
0.8 -20.0%	1.8 -10.0%	4.8 -4.0%	9.8 -2.0%
0.7 -30.0%	1.7 -15.0%	4.7 -6.0%	9.7 -3.0%
0.6 -40.0%	1.6 -20.0%	4.6 -8.0%	9.6 -4.0%
0.5 -50.0%	1.5 -25.0%	4.5 -10.0%	9.5 -5.0%
		4.4 -12.0%	9.4 -6.0%
		4.3 -14.0%	9.3 -7.0%
		9.2 -8.0%	19.2 -4.0%
		9.1 -9.0%	19.1 -4.5%
		9 -10.0%	19 -5.0%
		18.9 -5.5%	28.9 -3.7%
		18.8 -6.0%	28.8 -4.0%
		18.7 -6.5%	28.7 -4.3%
		28.6 -4.7%	38.6 -3.5%
		28.5 -5.0%	38.5 -3.8%
		28.4 -5.3%	38.4 -4.0%
		28.3 -5.4%	38.3 -4.3%
		28.2 -4.5%	38.2 -4.5%
		28.1 -4.8%	38.1 -4.8%

- Must calibrate at each of the following weights...

- Dairy Cows

- 10, 20, 30, 40, 50 lbs.

- Dairy Goats/Sheep

- 1, 2, 5, 10, 20 lbs.

- Refer to chart in MTTs Manual for acceptable weight readings

# Scale Calibration Requirements



- **Every scale must have unique serial number**
- **Each scale must be marked with calibration tag/sticker**
  - **Month & Year**
  - **Meter Center Used**
  - **Meter/Scale Technician**

# Reporting Scale Calibration Results

Scale no	FT	Make	Model	2013 Date	2014 Date	Int	MC	MT	1#	2#	5#	10#	20#	30#	40#	50#	2015 Status	2016 Status
174434	999	AWS	PK-110	7/7/2016	9/12/2016	67	Meter Center Name	Meter Tech Name	1	2	5	10.1	20.1	30.2	40.4	50.4		New 2016

- Proper reporting improves audit efficiency
  - Unique serial number – avoid alphanumeric values
  - Make and model of scale
  - Calibration date(s)
  - Meter center and technician name
  - Calibration weights at each level
  - Status during the audit period

# Reporting Scale Calibration Results

- **Suggested Status Codes for Scale Calibration Worksheets**
  - **Active**
  - **New (+ year) – scale new from the box**
  - **Return (+ year) – repaired scale or returned to active status**
  - **Storage – calibrated scale not in active use (backup)**
  - **Out (+ year) – scale taken out of service**
  - **Perm Out or POS – broken scale that cannot be repaired**
  - **Goats – scale that has only been calibrated for goats**

# SCALES SUITABLE FOR DHI PROGRAMS

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# Hanson Dairy Scale 600



- The old 'standard' for DHI milk weighing
- No longer manufactured
- Can reface the scale with new label – contact auditor
- Maintains calibration over the weight range



# Chatillon MD-60



- **Designed specifically for dairy applications**
- **Easy to read**
- **Heavy gauge steel construction, baked enamel finish**
- **Expensive purchase price but durable**
- **Easy to calibrate**

# Detecto MCS-60M



- Designed specifically for dairy applications
- Accurate weighing at all levels
- Combination plastic and steel
- Expensive purchase price but durable
- Easy to calibrate

# Pelouze (Viking) 7800 and 7842



- Low-cost scale
- Metal construction, baked enamel finish
- Moderately durable, can lose calibration easy
- **Does not like travel**
- Marketed by some dairy supply places as replacement for the Hanson scale

# Salter Brecknell 235-Series



- Medium cost point
- Metal construction, baked enamel finish
- Moderately durable

# Taylor 3460 and 3470











- Low-cost scale
- Combination plastic and thin steel
- **NOT durable and loses calibration easy**
- **Does not like to travel**
- Treat as disposable scale to send unsupervised/owner-sampler herds

# American Weigh Scales – H & PK Series



- Digital scale with low purchase price
- 66 lb. and 110 lb. models available
- Easy to carry in computer bag
- Accurate but not legal for trade
- Can be calibrated
- Modern image for DHI providing accurate results

# Available Resources on QCS Website

SCALES							
National DHIA, November 2014							
Manufacturer	Device	Control Unit	ICAR Approved	National DHIA Accepted	Picture	Meter Manual	Calib. Instr.
American Weigh Scales	H-66 H-110						
	PK-110						

The following resources are a click away

- **Pictures**
- **Scale Manuals**
- **Calibration Instructions**