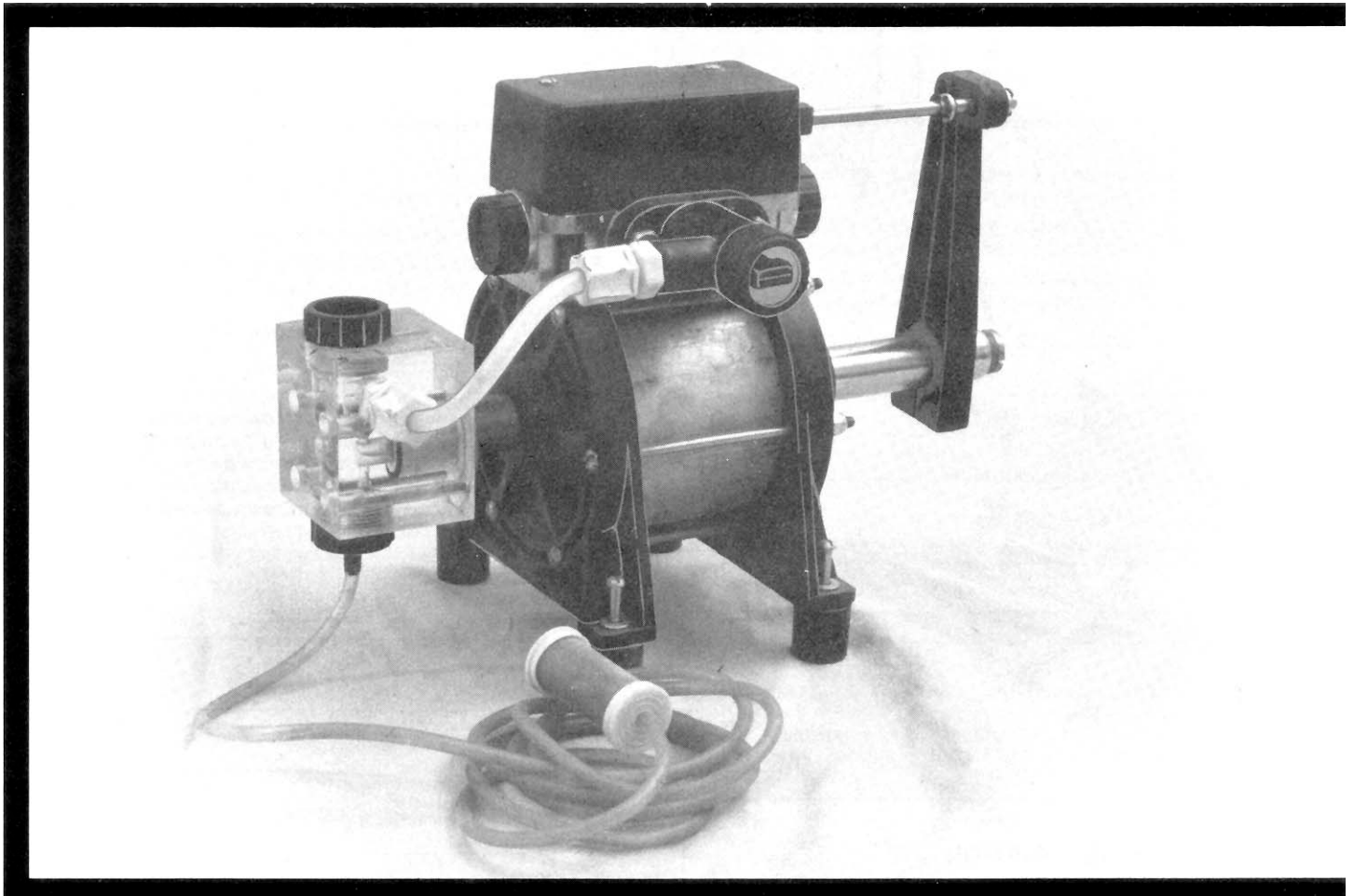


# EVALUATION REPORT 356



## CROWN H6FIP LIVESTOCK WATER MEDICATOR

A Co-operative Program Between



# CROWN H6F1P LIVESTOCK WATER MEDICATOR

## MANUFACTURER

Crown Industries Inc.  
North Ballard Drive  
Lake Forest, Illinois  
60045 U.S.A.

## DISTRIBUTOR

Walbern Agri-Systems  
Box 250  
Linden, Alberta  
T0M 1V0

RETAIL PRICE: \$235.00 (March 1984, f.o.b. Chicago)

## SUMMARY AND CONCLUSIONS

**Performance:** Performance of the Crown H6F1P was *very good*. It was designed to deliver 1.0 oz/gal (U.S.) (7.8 mL/L).<sup>1</sup> Observed medication ratios varied from 1.0 to 1.02 oz/gal (U.S.) (7.8 to 8.0 mL/L) at constant flow rates between 0.25 and 1.30 gal (U.S.)/min (1.0 and 5.0 L/min). At fluctuating flow rates between 0.40 and 1.04 gal (U.S.)/min (1.5 and 4.0 L/min), observed medication ratios varied from 1.02 to 1.06 oz/gal (U.S.) (8.0 to 8.3 mL/L).

Variations of supply line pressures did not greatly affect medication ratio.

**Installation and Operation:** Ease of installation and operation was considered *good*.

**Safety and Durability:** No safety problems were evident. No durability problems occurred during the test.

**Operator Manual:** The operator manual was clearly written and contained comprehensive installation and maintenance instructions.

## RECOMMENDATIONS

It is recommended that the manufacturer consider providing a means of monitoring the flow of medication.

Senior Engineer -- G.M. Omichinski

Project Engineer -- C.W. Chapman

## THE MANUFACTURER STATES THAT

With regard to the recommendation, the concentrate can be monitored periodically by removing the suction tube from concentrate container and inverting the tube. The proportion will "draw" 10.5 in (290 mm)/stroke. Alternatively, a calibrated container may be used. The proportioner draws 2 mL per stroke.

## GENERAL DESCRIPTION

The Crown H6F1P Medicator is an automatic livestock water medicator designed for installation in a water supply line to provide 1.0 oz/gal (U.S.) (7.8 mL/L)<sup>2</sup> of medication to livestock drinking water. It uses a water driven positive displacement metering piston pump to proportion the medication and a separate medication container. Detailed specifications are given in APPENDIX I.

## SCOPE OF TEST

The performance of the Crown was determined at various pressures and over a wide range of constant and fluctuating flows<sup>3</sup>, while using a standard medication solution. In addition, the ease of installation and operation, power requirements, safety and suitability of the operator manual were evaluated.

# RESULTS AND DISCUSSION

## QUALITY OF PERFORMANCE

**Accuracy:** Medication ratios at constant and fluctuating rates are shown in FIGURE 1. Observed medication ratios were slightly higher than the design ratio of 1.0 oz/gal (U.S.) (7.8 mL/L) for constant and fluctuating flow rates.

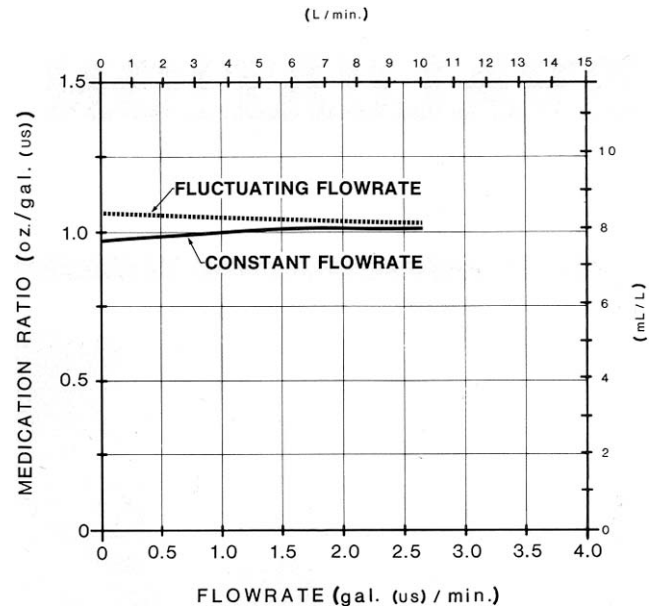


FIGURE 1. Medication ratios vs flow rates.

Medication ratios at various supply line pressures are shown in FIGURE 2. Since varying pressure did not greatly affect medication ratios, the Crown would be compatible with typical farm pressure systems. The manufacturer's maximum pressuring rating was 75 psi (510 kPa). The Crown operated at a minimum pressure of 3 psi (20 kPa).

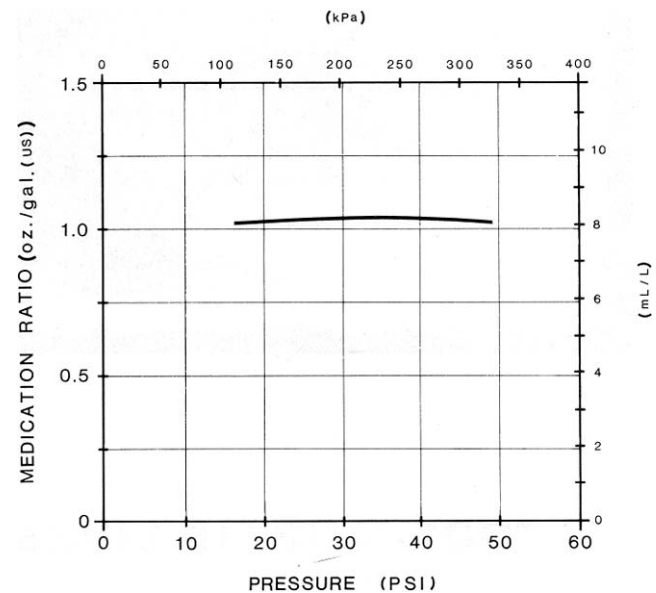


FIGURE 2. Medication ratios vs. pressure

**Maximum Flows:** The maximum obtainable water flow at 30 psi (205 kPa) through the Crown when connected to a 33 ft (10 m) length of 0.5 (12 mm) diameter hose was 3.30 gal (U.S.)/min (12.5 L/min). At this flow rate, the observed medication ratio was 1.06 oz/gal (U.S.) (8.3 mL/L).

<sup>1</sup>A conversion table is provided in APPENDIX IV.

<sup>2</sup>Prairie Agricultural Machinery Institute Detailed Test Procedure for Livestock Water Medicators.

<sup>3</sup>APPENDIX II

## EASE OF INSTALLATION

The Crown was equipped with two standard male hose fittings for installation to the water supply line and 2.3 ft (0.7 m) length of plastic tubing, complete with strainer, for supplying the medication. A medication container was not supplied. The manufacturer recommended the medicator be installed in a clean, level location which is protected from freezing, and that a filter be installed in the water supply line.

## EASE OF OPERATION

The Crown is self priming.

Direct monitoring of the medication flow was not possible. It is recommended that the manufacturer consider providing a means of monitoring the flow of medication. The medication ratio was not adjustable, however, the ratio could be varied by diluting the medication (an adjustable model H6V1P is also available).

**Maintenance:** The manufacturer recommended the toggle spring be replaced at six month intervals. A replacement spring was supplied with the medicator.

## POWER REQUIREMENTS

The Crown was water powered and no other power source was required.

## OPERATOR SAFETY

The Crown was safe to operate if the manufacturer's recommendations were followed. No safety problems were evident.

## OPERATOR MANUAL

The operator manual was well written and illustrated. It contained useful information on installation, operation and maintenance. No medication mixing instructions were included in the manual. A complete parts list was included.

## DURABILITY

The intent of the test was evaluation of functional performance. An extended durability test was not conducted. No mechanical problems occurred during testing.

### APPENDIX I

#### SPECIFICATIONS:

**MAKE:** Crown Technology  
**MODEL:** H6F1 P  
**SERIAL NO.:** F1393

#### OVERALL DIMENSIONS:

-- height	7.6 in	(190 mm)
-- width	10.8 in	(270 mm)
-- length	1 0.8 in	(270 mm)
-- total weight	6.7 lbs	(3.12 kg)

#### WATER LINE CONNECTION:

	<u>INLET</u>	<u>OUTLET</u>
-- size	1 in (25 mm)	1 in (25 mm)
-- type	female hose	male hose

#### MEDICATION HOSE:

-- length	28.40 in	(710 mm)
-- diameter	0.16 in	(4 mm)

### APPENDIX II

Fluctuating flows occur when a nipple or water bowl system is used. In the evaluation of livestock medicators fluctuating flows were obtained by continuously cycling three water bowl valves on and off. Reported values for fluctuating flows are the average flows, or the total volume of water delivered divided by the duration (time) of the test.

### APPENDIX III

#### MACHINE RATINGS

The following rating scale is used in Machinery Institute Evaluation Reports:

Excellent	Fair
Very Good	Poor
Good	Unsatisfactory

### APPENDIX IV

#### CONVERSION TABLE

Inches (in) x 25.4	= Millimetres (mm)
Pounds Force/Square Inch (psi) x 6.890	= Kilopascal (kPa)
Gallons (U.S.) x 3.785	= Litres (L)
Gallons (U.S.)/minute x 3.785	= Litres/minute (L/min)
Ounces/gallons (U.S.) x 7.810	= Millilitre/litre (mL/L)



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