



CSAM



TRAINING ON ANTAM STANDARD CODE For TESTING OF KNAPSACK MISTERS CUM DUSTERS

PART -1 : ENTAM Testing and mutual recognition process

16 - 28 October 2016, Nanjing China

**2nd Training of Trainers on ANTAM Codes
Organized by ANTAM and CAMTC**

ENTAM : Testing and mutual recognition process

JP Douzals



ENTAM structure and process

Studies and Researches : improve the performance of Agricultural Machinery and sharing best practices

Innovation: development of best technologies

Standardization: common testing activity and mutual recognition of the tests on the basis common testing procedures or methodologies

Certification : in accordance with OECD codes

ENTAM is currently made up of 11 members, 1 honorary witness (FAO) and 4 observer members (INTA, AFMSPTC CEA, VIM) respectively from Argentina, Bulgaria, Brazil and Russia



HOW ENTAM WORKS

First level:

- Machine testing
- Test report
- Entam registration

Testing activity:

Entam bodies test machines based on common methodology

- 1) ENTAM bodies test the machines following the network's common methodology (approved by ENTAM's Technical Working Group)
- 2) At the end of testing activities ENTAM issues a test report (in English) and the machine becomes "ENTAM Registered".



ENTAM TWG

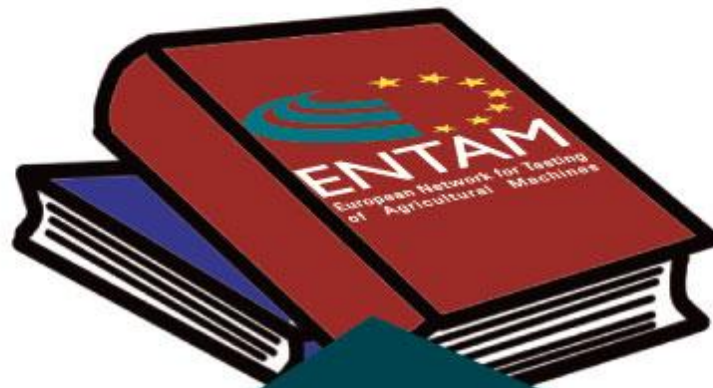
Technical Working Group

HOW ENTAM WORKS

Second level:

Entam

Registered Test Report



Entam Recognized
Test Report



A Team of Competence (ToC)
is responsible for test
recognition activities

ENTAM - Test Report



Sprayer type:
Trade mark:
Model:

Trailed Field Crop Sprayer
CAFFINI
Prestige 2800/24

Manufacturer:
Caffini spa
Via Marconi, 2
I - 37050 Palù (VR)

Test report: 05/157

October 2009

Assessment table

No.	Contents	Assessment		
		2200 l	2800 l	3300 l
1	Spray tank surface roughness	xxx	xxx	xxx
2	Spray tank over volume	x	x	x
3	Volume of total residual	xx	xx	xx
4	Spray tank contents gauge up to 20% Filling	x	xxx	x
5	Spray tank contents gauge from 20% Filling	xxx	xxx	xx
6	Agitation system (deviation of even solution)	x	x	xx
7	Width of nozzle bar section		x	
8	Boom height adjustment range		x	
9	Deviation of pressure gauge		x	
10	Deviation of flow meter		xx	
11	Regulation speed		xx	
12	Transverse distribution		xx	
13	Rinsing water tank	xx	xx	xx
14	Deviation of volume/hectare adjustment device (spray computer) from desired value		xx	
15	Repeatability of volume/hectare adjustment device (spray computer)		xx	
16	Pressure drop between manometer and nozzle		xx	
17	Deviation of single nozzle output from table		xxx	

Note: The assessment keys are listed below. All detailed results are in the following test report.

No.	unit	x	xx	xxx	No.	unit	x	xx	xxx
1	µm	>70-100	30-70	<30	10	%	4-5	2-4	0-<2
2	%	5-8	>8-12	>12	11	%	>7-10	>3-7	0-3
3	of allow.value	>2/3-3/3	1/3-2/3	<1/3	12	CV	>7-9	4-7	<4
4	%	7.5-5.0	5.0-2.5	<2.5	13	% of tank vol.	10-12	>12-14	>14
5	%	5.0-4.0	<4.0-2.0	<2.0	14	%	>4-6	2-4	<2
6	%	>10-15	5-10	<5	15	%	>2-3	1-2	<1
7	m	4.5-6	>3-4.5	3 or less	16	%	>7-10	3-7	<3
8	m	1-1.5	>1.5-2.0	>2.0	17	%	>7-10	3-7	<3
9	bar	>0.10-0.20	>0.05-0.10	0.00-0.05					

Description of implement

The implement is a trailed sprayer for use on herbaceous crops. The sprayer is attached to the tractor through the towing hook (steering drawbar optional).

The axle is fitted by hydraulic suspension.

The frame of the machine is made of painted steel, the main and auxiliary tanks are made of polyethylene. A gauge is located on the front left of the main tank. The liquid level is indicated by a transparent external tube with float. Agitation is through hydraulic stirrers located on the bottom of the tank. The tank is completely emptied using a valve located on the left side. Access to the main tank is through an ad hoc raised platform situated on the left side. The implement has a range of models, having a main tank nominal capacity of 2200, 2800 and 3300 l.

The implement is powered through the tractor PTO having a rated speed of 540 rpm.

The implement has a diaphragm pump located in front of the main tank. Pressure regulation and liquid dispensing are controlled using electrically operated controls that can be placed in the tractor cab.

There are 2 filters: one suction filter, which can be inspected even if the main tank is full, and one pressure filter.

The boom, having a working width of 18, 21, 24, 27 and 28 m, is made out of painted steel. During transport it is folded on the side of the tank using ad hoc supports used to block the implement. The boom optionally can be fitted with air assistance. The air flow is obtained by a 800 mm axial fan hydraulically driven.

The boom is attached to the support frame through a parallelogram connection, while the boom support is a collapsible trapezoidal joint. Adjusting of the boom position and opening-closing operations are electro-hydraulically operated through a control panel that can be positioned close to the driver's seat or using directly the tractor's hydraulic distributors. The blocking of boom oscillation is automatic when the boom is being closed.

Liquid is sprayed under pressure. The nozzle holders are equipped with a diaphragm antidrip device.

The valves for managing the hydraulic circuit (spraying/cleaning) are located in the front left side.

The pressure gauge for checking operating pressure is positioned on the front of the main tank. It has a diameter of 100 mm, end scale of 25 bar and is in intervals of 0.1 bar.

An induction hopper is installed on the left side of the machine for the pre-mixing of chemical products.



Induction hopper for loading chemical products



Valve unit



Boom attachment



External cleaning

Sizes and weights

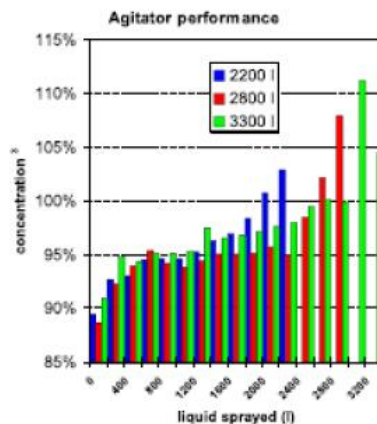
extension	length (mm)	width (mm)	max height (mm)	empty weight (kg)	total weight (kg)
a PRESTIGE 2800/24	6050	2500	3300	3110	6150
b PRESTIGE 2800/18	5650	2500	2900	3045	6085
s PRESTIGE 2800/18Av	6400	2600	2900	3145	6185
d PRESTIGE 2800/20	5650	2600	2900	3065	6125
e PRESTIGE 2800/20Av	6400	2600	2900	3185	6225
f PRESTIGE 2800/21	5650	2600	3300	3090	6135
g PRESTIGE 2800/21Av	6400	2600	3300	3195	6235
h PRESTIGE 2800/24Av	7000	2600	3300	3210	6250
i PRESTIGE 2800/27	6650	2600	3600	3175	6215
j PRESTIGE 2800/27Av	7900	2600	3600	3275	6315
k PRESTIGE 2800/28	7000	2600	3600	3165	6225
l PRESTIGE 2800/24Av	8000	2600	3400	3285	6325
m PRESTIGE 3300/27	6650	2600	3100	3710	6750
n PRESTIGE 3300/21Av	6400	2600	3300	3310	6660

extension	length (mm)	width (mm)	max height (mm)	empty weight (kg)	total weight (kg)
o PRESTIGE 3300/24	6050	2500	3300	3225	6765
p PRESTIGE 3300/24Av	7000	2500	3300	3325	6865
q PRESTIGE 3300/27	6550	2500	3600	3290	6830
r PRESTIGE 3300/27Av	7500	2500	3600	3395	6930
s PRESTIGE 3300/28	7050	2500	3600	3300	6840
t PRESTIGE 3300/28Av	8000	2500	3600	3400	6940
u PRESTIGE 2200/18	5450	2500	2900	2970	5410
v PRESTIGE 2200/18Av	6400	2500	2900	3070	5510
w PRESTIGE 2200/20	5450	2500	2900	3010	5460
x PRESTIGE 2200/20Av	6400	2500	2900	3110	5560
y PRESTIGE 2200/21	5450	2500	3300	3020	5480
z PRESTIGE 2200/21Av	6400	2500	3300	3120	5580
aa PRESTIGE 2200/24	6050	2500	3300	3015	5475
ab PRESTIGE 2200/24Av	7000	2500	3300	3135	5575

Main results of functional tests

Residual (l)		
in the tank		
horizontal		
with back flow - with agitation	15.50	
with back flow - without agitation	--	
without back flow - without agitation	6.70	
inclined to right	5.90	
inclined to left	5.90	
inclined to rear	5.80	
inclined to front	6.80	
in the hoses: dilutable		
	9.90	
dilutable residual ¹		
	17.10	
in the hoses: non dilutable ²		
boom width		
18 m	24 m	28 m
9.10	13.50	15.40
total residual		
boom width		
18 m	24 m	28 m
26.20	30.60	32.50

¹ Liquid that can flow back into the main tank and can be diluted by the washing tank contents
² Liquid that not can flow back into the main tank



³ Copper oxychloride concentration measured during the tank emptying, after 16 hours standing and 10 minutes of agitation.

Pressure gauge	
diameter	100 mm
distance between marks	0.10 bar
accuracy	0.15 bar

Fan 800 mm - 2300 rpm			
boom	21 m	24 m	28 m
flow rate (m ³ /h) ⁴	25 480	32 880	37 810
mean velocity (m/s) ⁴	6.1	5.9	4.6
mean direction ⁴	82° - 98°		

⁴ Measured 0.5 m from the outlet

Transverse distribution

Nozzle TeeJet XR11004 @ 0.60 m height

working pressure (bar)	CV (%)					
	boom type					
	18	20	21	24	27	28
2.0	6.60	6.60	6.90	6.90	6.40	6.50
3.0	5.80	5.90	6.10	6.40	6.20	6.30
5.0	5.60	5.80	6.00	6.30	6.10	6.20

Testing of Safety

The machine is endowed with CE marking, an identification plate, safety pictograms, an instruction handbook and an EC manufacturer's declaration of conformity.

The implement meets the requirements of Enama safety regulations cat. 05.05 – Crop protection machines: Trailed boom sprayers - rev. 2.4 of 1/04/2008, containing the following harmonised standards and technical specifications: UNI EN 907: 1998, UNI EN 1553: 2001, ISO 11684: 1995. The relative documentation has been filed.

Explanation on testing

Testing takes place according to the Technical Instructions for ENTAM-Tests of Field Crop Sprayers (Rel 3). This procedure was developed by the competent testing authorities of the European countries participating in ENTAM and is based on the CEN standard EN 12761 "Agricultural and forestry machinery – Plant protection equipment for the application of plant protection products and liquid fertilizers". This test is only a technical performance test which takes place without an accompanying field test.

The test results apply only to the tested appurtenances of the sprayer. Statements on the behaviour of the sprayer with different appurtenances cannot be derived from this results.










Responsibility and recognition



Performing competent authority:

Crop Protection Technology DEIAFA - meccanica
Via L. da Vinci, 44
I -10095 Grugliasco (TO)

This test is recognized by the ENTAM members:

	ART - Agroscope Reckenholz-Taenikon Research Station - SWITZERLAND	I-43.09
	AU/DAE - University of Aarhus - Department of Agricultural Engineering - DENMARK	AU DAE ENTAM 2009-13
	Cemagref -Institut de recherche pour l'ingénierie de l'agriculture et de l'environnement – FRANCE	CEMAGREF/ENTAM/ 09/025
 <small>Generalitat de Catalunya Departament d'Agricultura, Alimentació i Acció Rural</small>	CMA - Centre de Mecanització Agrària - SPAIN	EPH005/09
	HBLFA Francisco Josephinum Wieselburg - BIOMASS LOGISTICS TECHNOLOGY (FJ - BLT) - AUSTRIA	051/09
	JKI - Julius Kühn-Institut (formerly BBA) – GERMANY	ENT-I-07/09
	MGI - MEZOGAZDASÁGI GÉPESÍTÉSI INTÉZET Hungarian Institute of Agricultural Engineering - HUNGARY	I-23 2009
	N.AG.RE.F - National Agricultural Research Foundation - GREECE	AE/122/01/ZZ
	PIMR - Przemysłowy Instytut Maszyn Rolniczych - Industrial Institute of Agricultural Engineering - POLAND	PIMR-31/ENTAM/09