

Serious Objections to “Biosafety Trials” of DMH-11 GM mustard with special reference to Agronomic Data

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Which is REAL DMH-11?

Until 2006-07:

- Offspring of **EH-2** (*barnase*) X **Varuna** (*barstar*)

During BRL:

- Offspring of **Varuna** (*barnase*) X **EH-2** (*barstar*)

Technically this can be considered as reciprocal cross- not exactly.

Critical Objection:

- When the parents are swapped, the offspring is bound to be different in terms of cytoplasmic inheritance
- This also has implications for event selection and stability
- Has this swapping happened with regulatory clearance or ignorance?
- Has separate Event Selection process of applying, being permitted and testing happened?
- Has GEAC discussed this? Did this have any bearing on biosafety testing?
- Is maintenance of A SINGLE biosafety dossier under the name of DMH-11, for two DIFFERENT GMOs acceptable?

In 2003: at Jaunti

Yield Trial: EH-2(Barnase) X Varuna(Barstar)

Seed Production: EH-2(Barnase) X Varuna(Barstar)

Experimental design: The two trials were conducted as per the following experimental design.

Hybrid trial of transgenic: There were four entries such as Varuna (non transgenic), EH-2 x Varuna F1 (non-transgenic hand made hybrid), EH-2 (non transgenic) and EH-2 (barnase) x Varuna (barstar) F1 hybrid. The experiment was conducted in a RBD design with six replications. Size of the each plot was 2m x 3m. Row to row spacing was maintained at 40cm and plant to plant spacing within a row was 10cm.

Production of transgenic hybrid seeds: In a 50m² (10m x 5m) area, the EH-2 (barnase) and Varuna (barstar) were sown for production of hybrid seeds. One border line in the four sides was grown with Varuna (barstar) to protect the experiment from external contamination of foreign pollen. A total of 18 EH-2 (barnase) and seven Varuna (barstar) lines were planted in this plot in 3:1 ratio. Length of the row was 5m and row to row spacing was maintained at 40cm.

Isolation distance: An isolation distance of 50m from all sides of each trial was maintained. No *Brassica* plant was allowed to grow in this isolation area.

Date of Sowing	:	October 22, 2003
Number of irrigation	:	1 st – Pre-sowing
		2 nd – 24 days after sowing

Ref: Report of the contained open field trials of hybrid and hybrid seed production of transgenic mustard (*Brassica juncea*) expressing barnase and barstar genes at jaunti Village, Delhi during Rabi 2003)

In 2004: at Jaunti

Yield Trial: EH-2(Barnase) X Varuna(Barstar)

Seed Production: EH-2(Barnase) X Varuna(Barstar)

Experimental design: Two trials were conducted one for yield potential and the other for hybrid seed production as per the following experimental design.

Yield trial of transgenic hybrid: There were six entries in the trial consisting of five non-transgenic checks such as Varuna, Kranti, RL-1359, Rohini and DYJ-1 (breeding line) and transgenic EH-2 (barnase) x Varuna (barstar) F1 hybrid. The experiment was conducted in a RBD design with four replications. Size of each plot was 2.7m x 5m (13.5 m²). Row to row spacing was maintained at 30cm and plant to plant spacing within a row was 10cm.

Production of hybrid seed: In an area of 50m² (10m x 5m), seeds of EH-2 (barnase line) and Varuna (barstar line) were sown for production of hybrid seed. One border line on all the four sides was sown with Varuna (barstar) to protect the experiment from external contamination of foreign pollen. A total of 18 EH-2 (barnase) and seven Varuna (barstar) lines were planted in this plot in 3:1 ratio. Length of the row was 5m and row to row spacing was maintained at 40cm.

Isolation distance: An isolation distance of 50m from all sides of each trial was maintained. No *Brassica* plant was allowed to grow in this isolation area.

Date of Sowing : October 28, 2004

Number of irrigation : 1st – Pre-sowing

Ref: Report of the contained open field trials of hybrid and hybrid seed production of transgenic mustard (*Brassica juncea*) expressing barnase and barstar genes at jaunti Village, Delhi during Rabi 2004)

In 2006 (Swapping Year?)

MLT Yield Trial: DMH-11: EH-2(Barnase) X Varuna(Barstar)
at 11 locations

Seed Production: Varuna (Barnase) X EH-2(Barstar) at Jaunti

- i) To test the yield performance and stability of transgenic mustard hybrid DMH-11 based on EH2 barnase/ Varuna barstar transgenics in a limited open field trial.
- b) Apart from generating data on above objectives, you are also directed to generate data on the following:
 - i) Persistence studies of volunteers in the experimental plot.
 - ii) Reaction of transgenic mustard towards diseases (Alternaria blight and White rust) and pest infestation (Aphids) with corresponding non transgenic lines as controls.
- c) The experimental field design of the contained field trial at above mentioned location shall be measuring net experimental area of 450 sq. meters. The seed increase experimental design of transgenic mustard hybrid for experimental purposes would be 50 sq. meters (5 x 10 meters) at Jaunti Village, Delhi. An isolation distance of 50 meters from the periphery of the nearest row of transgenic mustard would be maintained all around the experimental plot and no Brassica species would be grown in the isolation zone. During the seed increase experiments, you would generate data on the seed setting characters and seed yield of the hybrid. The experimental design for conduct of multi-location field trials and seed production are given at Annexure-1 & 2. You would be submitting the site plans for multi-location trials soon after completion of sowing, to the Department.

Annexure-1

ANNEXURE-1

Figure 7: Plan and experimental design of multi-site trials of transgenic mustard hybrid (DMH-11) for all the 11 locations

Plan

Number of locations: 11 (see below)
Design: RBD design with three replications
No of entries/replication: 5
Size of the plot/replication: 20m x 10m
Spacing: 45 cm x 15 cm
Spacing between plot: 1m
Isolation distance: 50 m from all around the trial
Fertilizer (N:P:K): 40:40:20 kg/ha as basal dose
N 40 kg/ha as top dressing at the
time of first irrigation (30-40 DAS)
Seed quantity: 200g/location

Details of entries

1. Transgenic hybrid (DMH-11)
2. Best CMS based hybrid identified from trials conducted during 2005-06
3. Varuna (national check)
4. Kranti (national check)
5. Zonal check (RL 1359 for Delhi and Haryana, Maya for Rajasthan and UP, GM-2 for Gujarat)

Annexure-2

ANNEXURE-2

Figure 8: Plan and experimental design of experiment 2

Plan:

Plan size: 10m x 5m (50m²)

Number of entries: 2

Length of the row = 5m

Spacing: Row to row – 60cm

Plant to plant – 10cm

Planting ratio: 3 bamase: 1 barstar

Details of entries:

1. Varuna bamase (bn 3.6)

2. EH-2 barstar (Modbs 2.99)

Experimental design:

10m

Which DMH-11 is tested since 2003? and is it tested by NRCRM?- Lies after Lies !!

Table 11: Year-wise trials undertaken on transgenic parental lines and hybrid DMH-11 from 2003-2007 to 2015

Growing season	Location(s)	Objective
2003-04	Jaunti Village, Delhi	To evaluate the agronomic performance of the hybrid and to assess the amount of hybrid seed production
2004-05	Jaunti Village, Delhi	Assessment of hybrid yield and hybrid seed production.
2005-06	Multi site trials by NRCRM, Bharatpur at 10 locations	To test the multi location agronomic performance of transgenic hybrid DMH-11.
2006-07	Multi site trials by NRCRM, Bharatpur at 10 locations	To test the multi location agronomic performance of transgenic hybrid DMH-11.
2010-11	BRL-I 1 st year trials by DRMR, Bharatpur at Kumher, Navgaon and Sriganganager	To compare environmental safety parameters and assess agronomic performance.
2011-12	BRL-I 2 nd year trials by DRMR, Bharatpur at Kumher, Navgaon and Sriganganager	To compare environmental safety parameters and assess agronomic performance.
2014-15	BRL-II trials by DRMR, Bharatpur at Ludhiana, Bathinda and Delhi	To compare environmental safety parameters and assess agronomic performance.

6.2 The field trials from 2003-2007 were undertaken by the National Research Centre on Rapeseed-Mustard (NRCRM), Bharatpur (now renamed as Directorate of Rapeseed-Mustard Research (DRMR)) under the All India

We now show that

**Yield of DMH-11
notched further up
by 7.5% by
tweaking data from
field trials.**

Reported higher than actual MSY of DMH-11 (Kg/ha)

Trial	Location	Reported by DMR ¹	Reported by Developer ²	Comments
BRL-I, 1st Year (2010-11)	Kumher	2285	2285	
	Alwar	2516	2515	
	SGnagar	3000	3000	
	Average	2600	2600	
BRL-I, 2nd Year (2011-12)	Kumher	2892	3332	Developer reported 15.2% higher than actually obtained yield for all cultivars in this year trials*
	Alwar	3157	3638	
	Average	3024	3485	
BRL-II (2014-15)	Delhi	1879	1879	
	Bhatinda	2734	2734	
	Ludhiana	2543	2543	
	Average	2385	2386	Overall Yield Increase of 7.5% notched up !
Actual Average of 8 Trials		2626		
Average of Average			2824	

Ref : 1) BRL Trial Reports 2) Bio safety summary Report to GEAC , MSY: Mean Seed Yield

We now show that

**Not a single BRL Trial has
been conducted using
Recommended National or
Zonal Check, that Hybrid is
removed as a check, even
though DMH-11 is supposed
to be for yield advantage!**

False claims of “proper checks”

GEAC should tell the nation, which out of 8 trials is conducted with proper check?

1. DMH-11, being a **hybrid**, must be compared with **hybrid** as per standard protocol. As per the data presented, **hybrid was never used** for comparison during any of the DMH-11 trials.
2. During BRL trials, comparisons in both the zones for all three years were done with **variety**, that too which **is neither a zonal check nor a national check** as recommended by AICRP-RM for Hybrid Trials.
3. Any claim saying proper checks are used is an **absolute lie**.
4. BRL trials **violate the protocol as well as conditions** for Permission.
5. Without using proper comparators, claims of **yield gains are scientifically not valid. This invalidates very basis of DMH-11**

A billion dollar question

Why was hybrid removed from comparison in BRL trials?

- Hybrid used during non-BRL trials in 2006-07 in AICRP MLRT – they were also for agronomic evaluation;

Non-transgenic Hybrid out yielded in **3 out of 4** locations in Zone II & **3 out of 5** in Zone III. Mean of comparator hybrid is also higher in both the Zones.

:Worth Noting:

- Hybrids **were removed as comparators** from all subsequent DMH-11 (BRL) trials, even though they are standard comparators in other AICRP RM hybrid trials.

WHY?

Purpose of Comparison Matters

For Bio-safety Trials

Purpose:

To check the safety with respect to **environmental and health impact** due to new gene inserted. So, It should be compared with...

Parents

Non-transgenic Isogenic Line

For yield Trials

Purpose:

To check the comparative **yield advantage**. So, It should be compared with another Hybrid...

Best check

National check

Zonal Check

Latest release cultivars

Different Purpose-Different Protocol- Different Comparator

**Biosafety Trials are not meant to check yield advantage
PROBLEM IS WITH REGULATORS & CROP DEVELOPERS TAKING
SHORT CUTS**

We now show that

**Low Yielder comparators
are used as opposed to the
accepted AIRCRP-RM
protocol, permission letter
condition & GEAC decision.**

Low Yielders are used as Check (Zone II)

Check	No. of years of testing	No. of Trials	MSY (Kg/ha)	Note
National Check				
Varuna (Used under BRL)	5	28	1907	Varuna is 15% low yielder than recommended national check.
Kranti (Recommended and used under AICRP)	11	67	2245	Note: Varuna was abandoned as NC before BRL testing started.
Zonal Check				
RL-1359 (Used under BRL)	7	41	2291	RL-1359 is low yielder upto 10.3% than recommended checks.
NRCDR-2 (Recommended and used under AICRP)	5	32	2321	
RH-0749 (Recommended under AICRP trials) (Variety Trials data)	3	20	2553	

Ref: AICRP data for IHT and AHT Trials

Low Yielders are used as Checks (Zone III)

Check	No. of years of testing	No. of Trials	MSY (Kg/ha)	Note
National Check				
Varuna (Used under BRL)	5	38	1646	Varuna is 10% low yielder than recommended check. Note: Varuna was abandoned as NC before BRL testing started.
Kranti (Recommended and used under AICRP)	11	79	1834	
Zonal Check				
Maya (Used under BRL)	5	38	1814	Maya is 9.8% low yielder than recommended check.
RGN-73 (Recommended and used under AICRP)	6	34	2012	

Ref: AICRP data for IHT and AHT Trials

We now show that

**DMH-11 is NOT
a HIGH Yielder.**

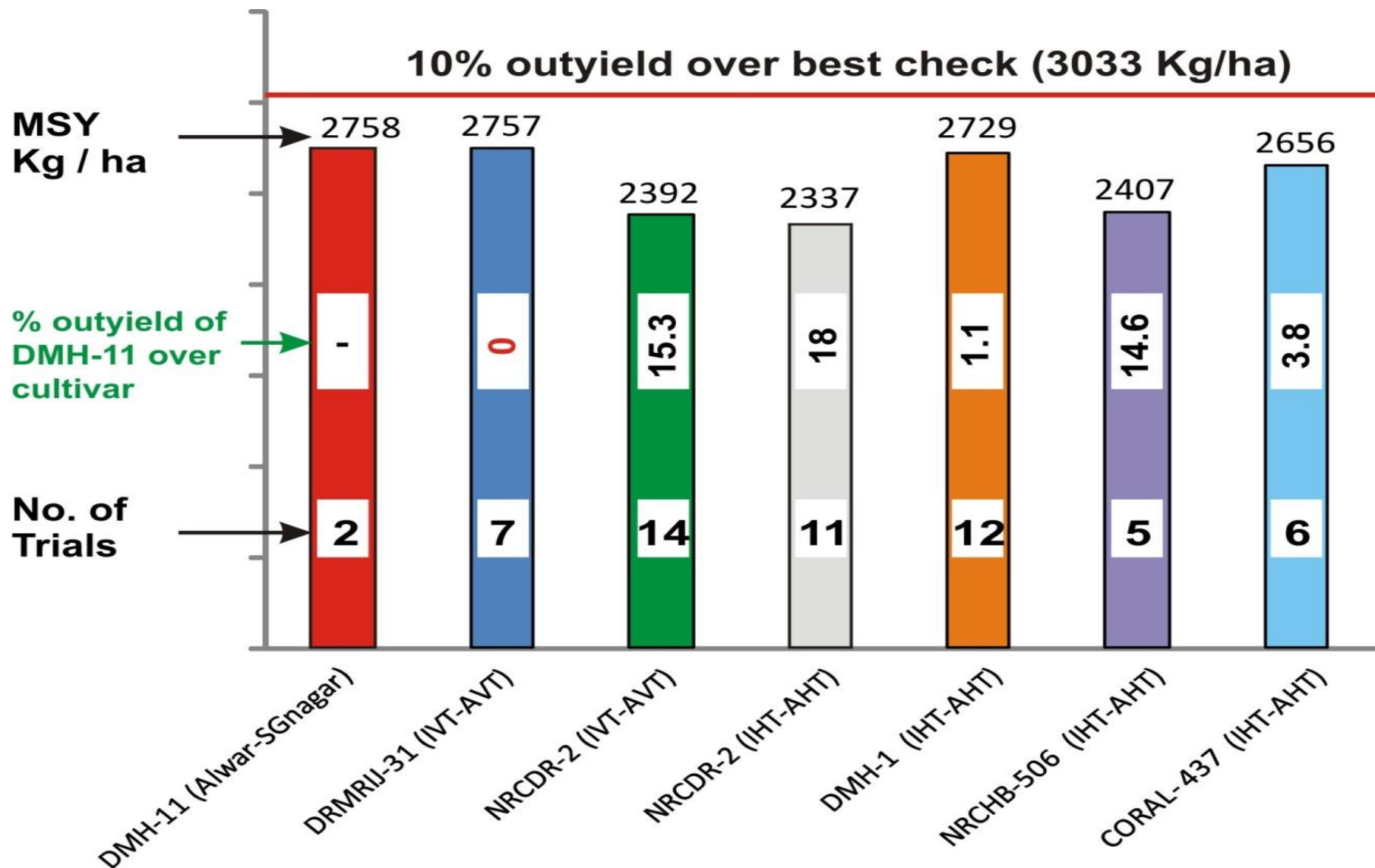
(Remember “10% Rule”)

**To promote new cultivar it should out
perform by at least 10 % over the best check)**

Year-Wise Comparison with AICRP Trial Data

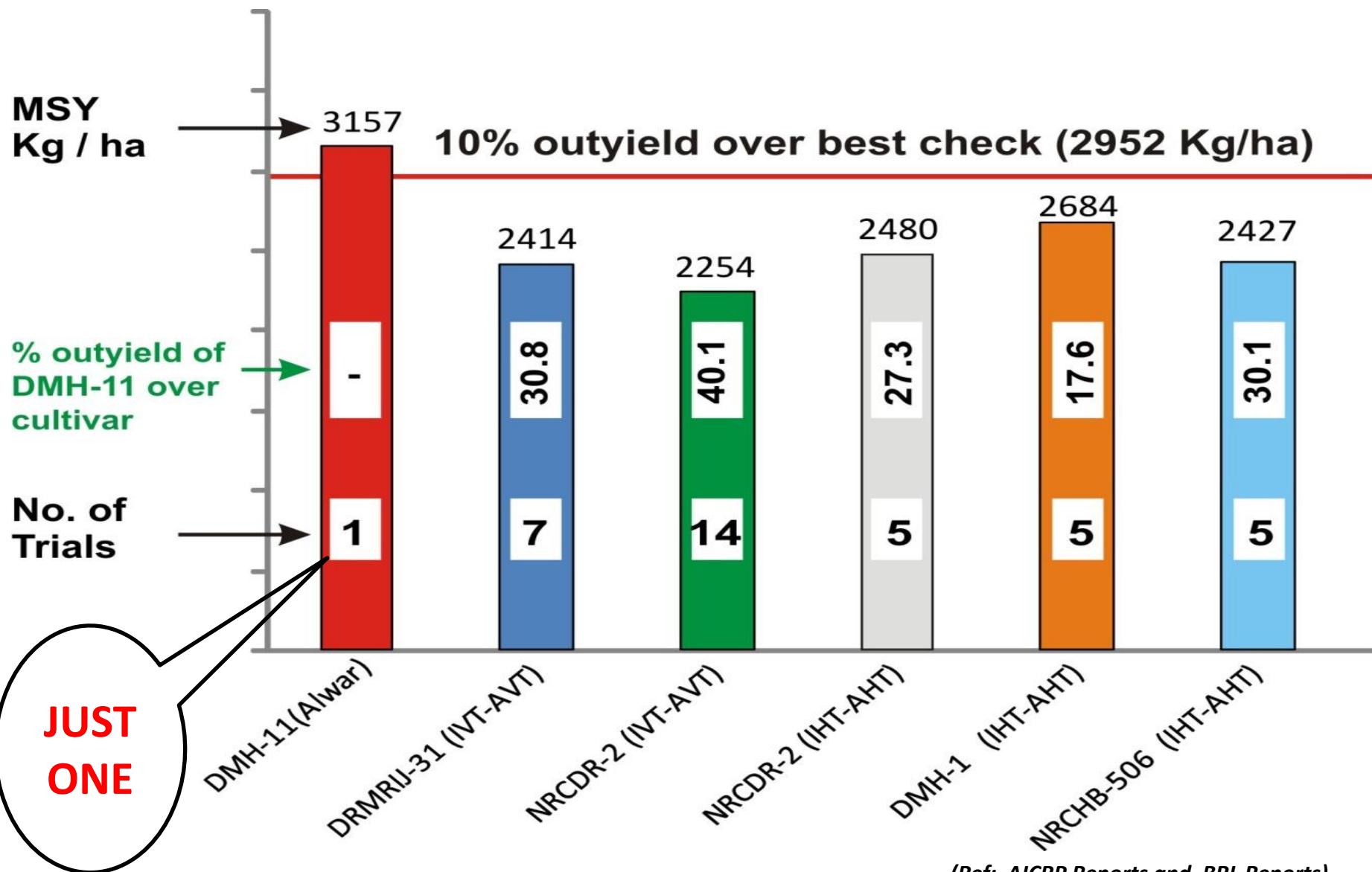
Note: Although Comparator data here is not from the same trial, we showcase the yields of such comparators from AICRPRM data of robust sample size for comparison's sake.

DMH-11 compared with Existing Cultivars (Zone II) 2010-11



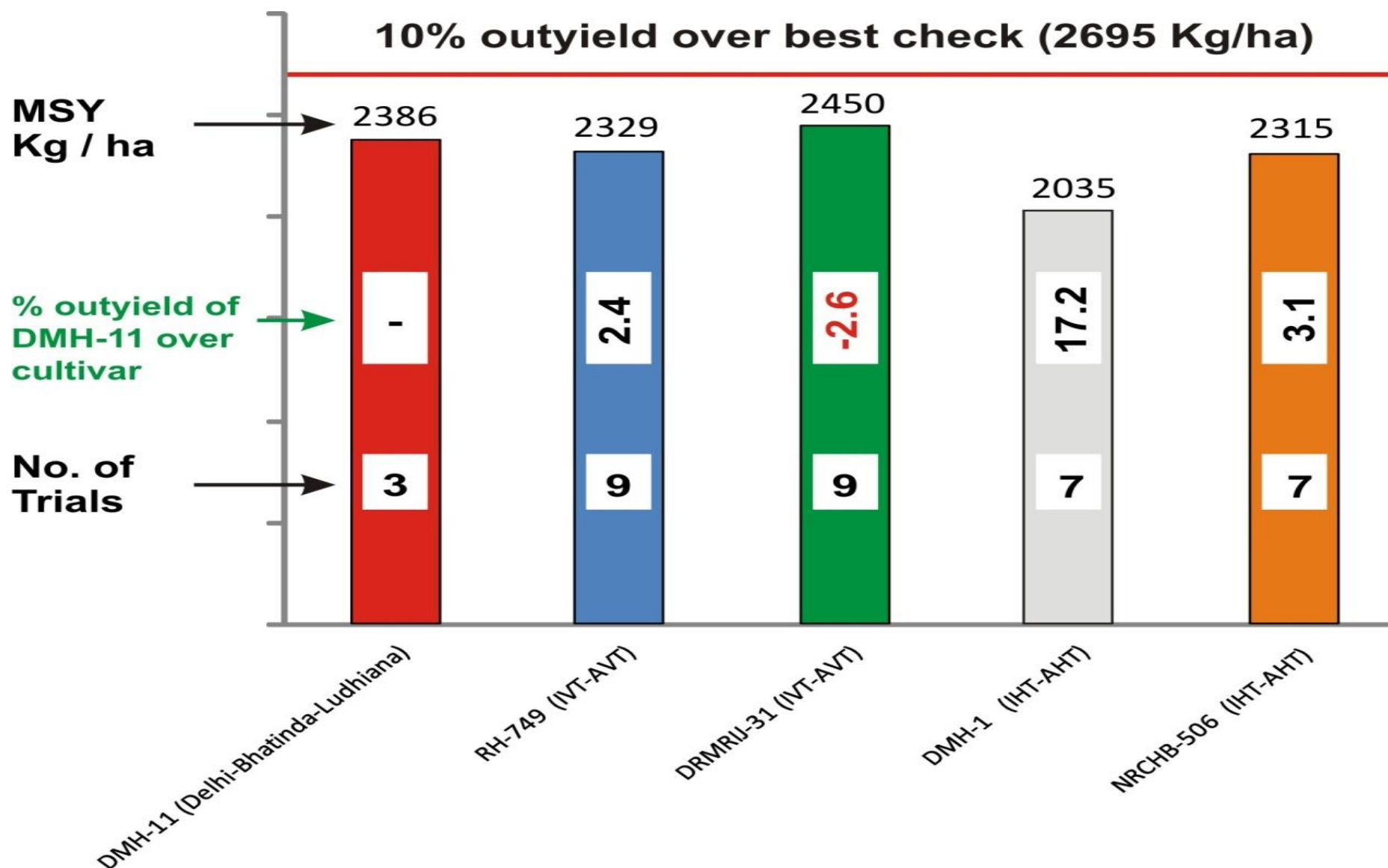
(Ref: AICRP Reports and BRL Reports)

DMH-11 compared with Existing Cultivars (Zone II) 2011-12



(Ref: AICRP Reports and BRL Reports)

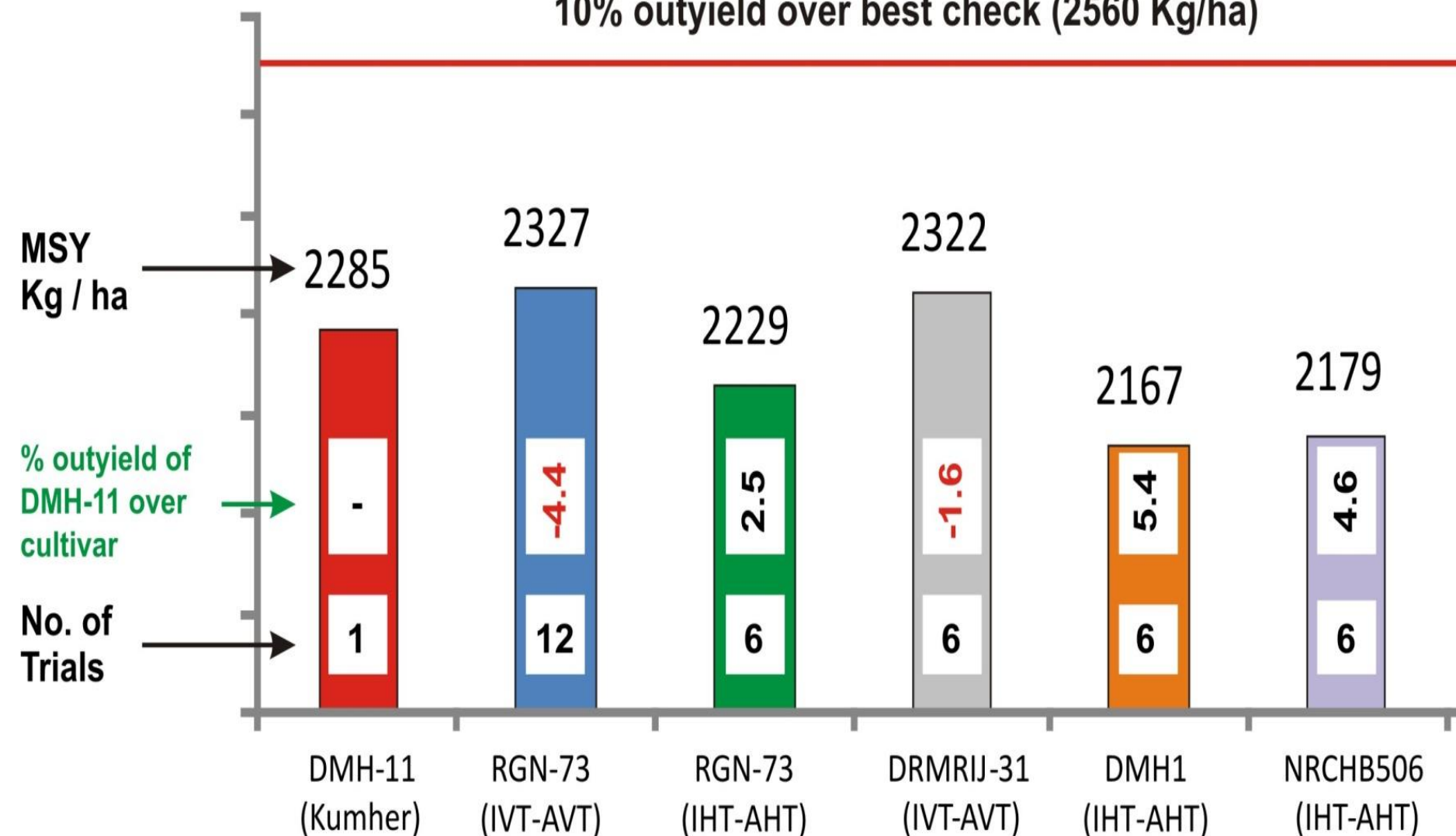
DMH-11 compared with Existing Cultivars (Zone II) 2014-15



(Ref: AICRP Reports and BRL Reports)

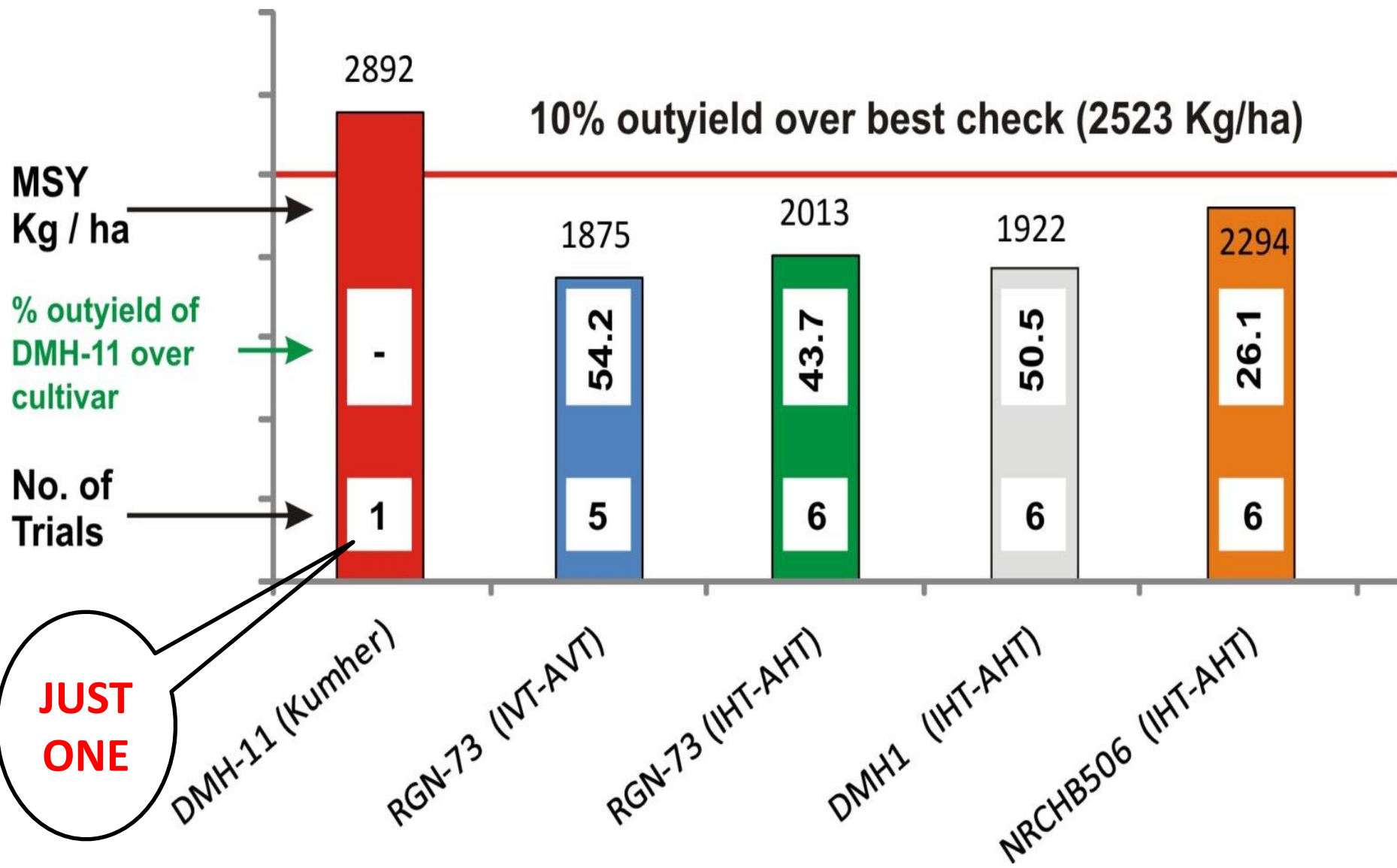
DMH-11 compared with Existing Cultivars (Zone III) 2010-11

10% outyield over best check (2560 Kg/ha)

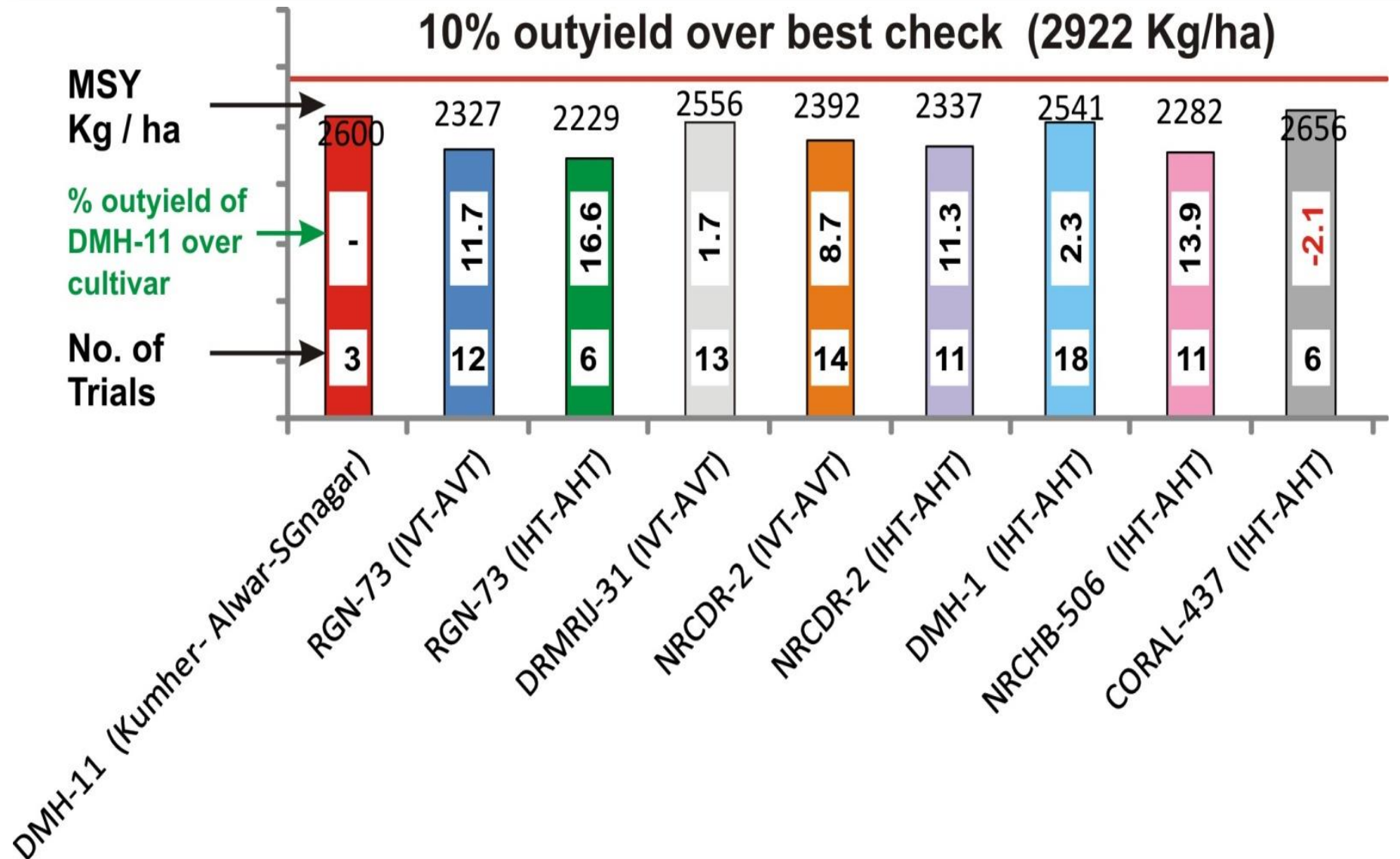


(Ref: AICRP Reports and BRL Reports)

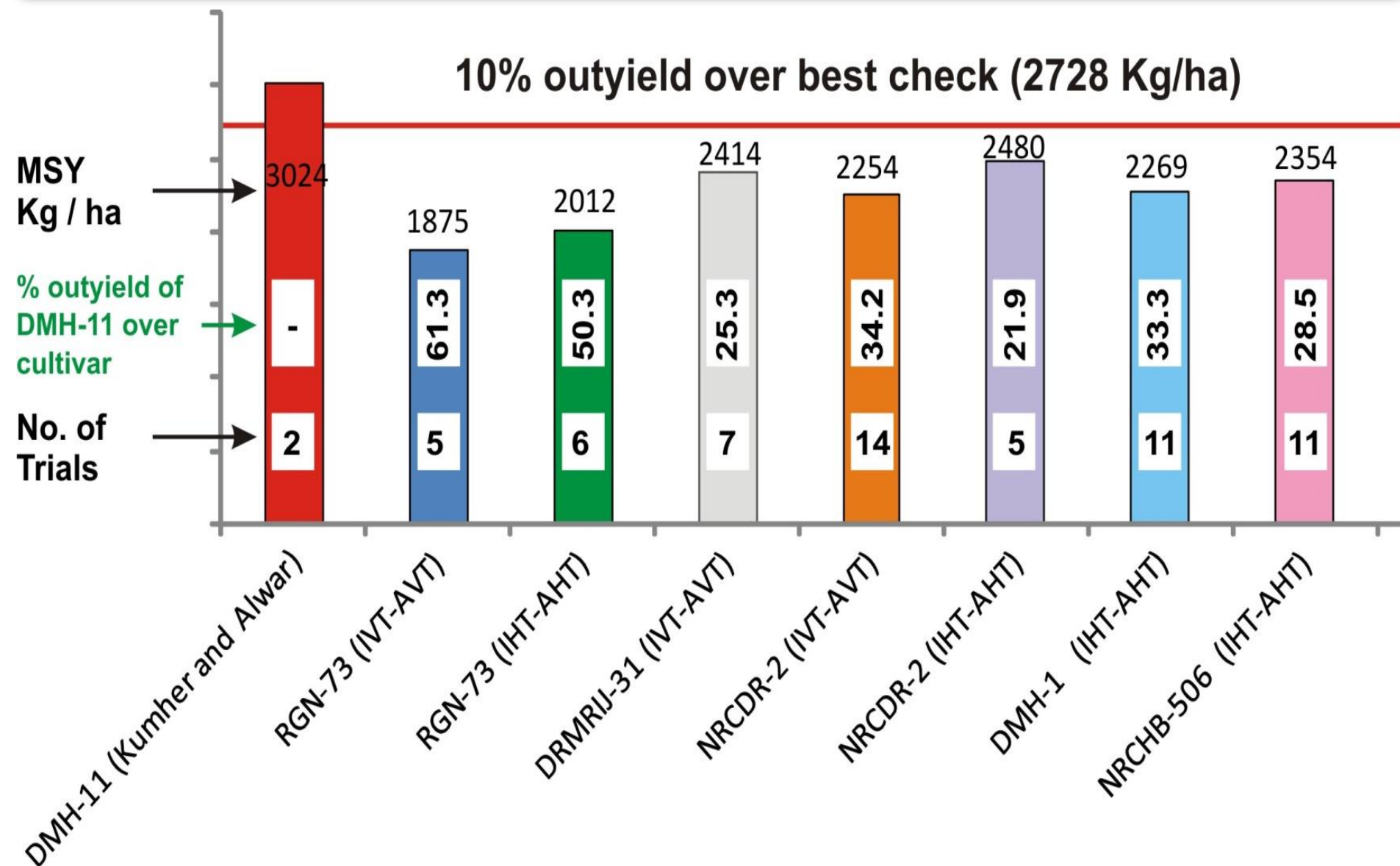
DMH-11 compared with Existing Cultivars (Zone III) 2011-12



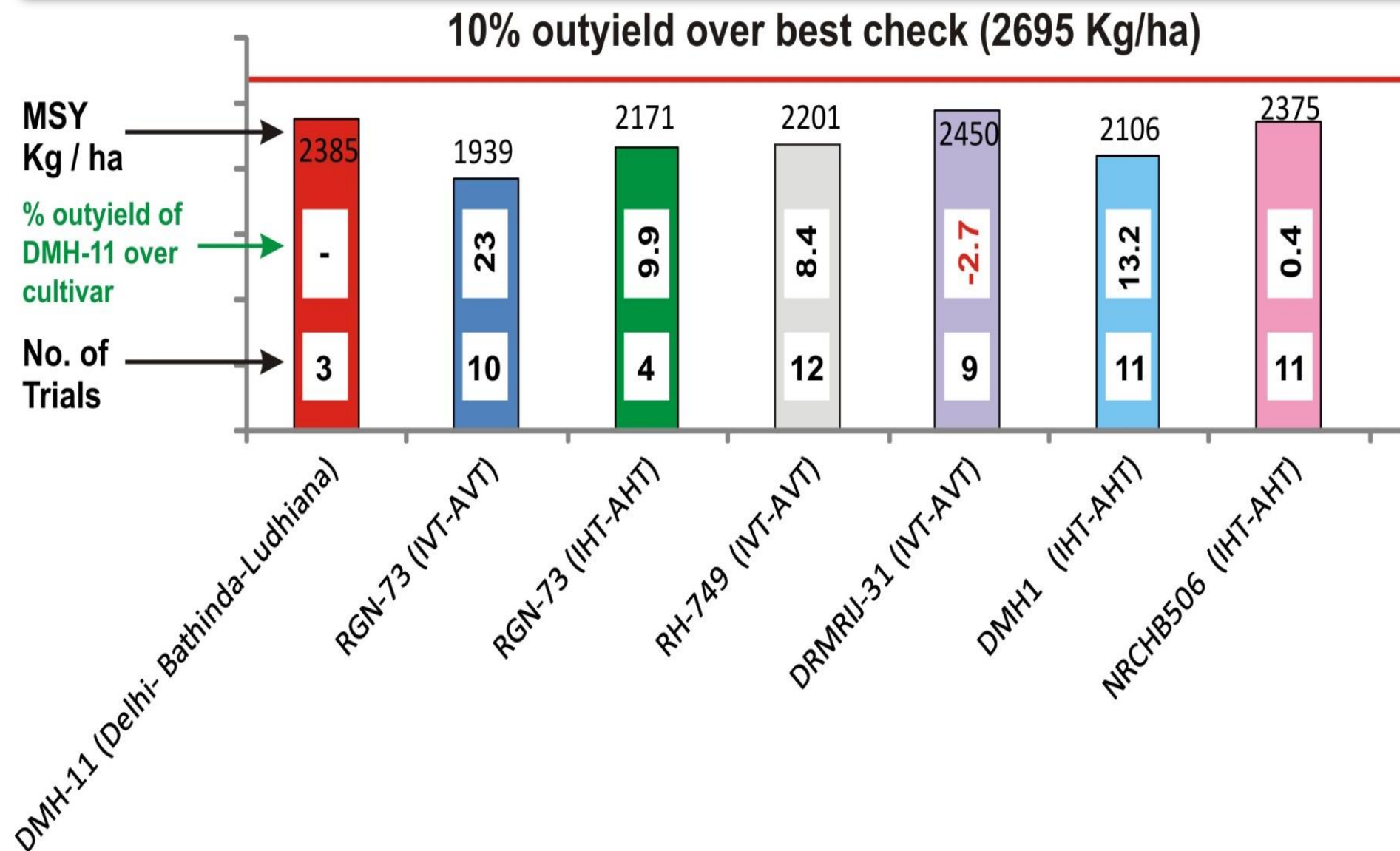
DMH-11 compared with Existing Cultivars (Zone II + III) 2010-11



DMH-11 compared with Existing Cultivars (Zone II + III) 2011-12



DMH-11 compared with Existing Cultivars (Zone II + III) 2014-15



(Ref: AICRP Reports and BRL Reports)

We also show

Location-Wise Comparison

**At not a single BRL trial
location has DMH-11
outperformed by 10%
compared to three year
average MSY of best check
under AICRP**

Summary of Location Wise yield advantage compared with recommended checks (based on three year averages of AICRP trial data)

Location	Year and Stage of Trial	No. of BRL Trials	% advantage of DMH-11 over the checks			
			National Check Kranti	Zonal Check NRCDR-2	Hybrid Check NRCHB-506	Hybrid Check DMH-1
Sriganganagar	2010-11 BRL-I, 1 st Year	1	28.1	12.7	29.8	2.8
New Delhi	2014-15, BRL-II	1	-10.3	-15.5	-8.3	-23.2
Bhatinda	2014-15, BRL-II	1	14.4	1.5	46.9	8.8
Ludhiana	2014-15, BRL-II	1	13.6	9.8	21.1	5.3
Alwar	2010-11 and 2011-12, BRL-I 1 st and 2 nd Year	2	Comparison is not possible as hybrid trials are not conducted under AICRP until 2013-14			
Kumher	2010-11 and 2011-12, BRL-I 1 st and 2 nd Year	2	Comparison is not possible as hybrid trials are not conducted under AICRP until 2014-15			

Figures in **RED** shows negative advantage. Figures in **GREEN** shows advantage is less than 10%
Figures in **BLACK** shows advantage is more than 10%

**ONLY ONE
location trial can
not be considered
valid in Zone III**

DMH-11 compared with existing Varieties (Zone III)

Cultivar	Year of Trials	Number of trial years	Number of Trials	MSY (Kg/ha)	% Difference in MSY of DMH-11 over respective cultivar
Varieties (MSY based on AICRP trials)					
RH-0749	2009-10, 2013-14, 2014-15	3	14	1851	39.9
DRMRIJ-31	2010-11	1	6	2322	11.5
NRCDR-2	2003-04, 2004-05	2	12	2106	22.9
Transgenic Hybrid (MSY based on BRL trials)					
DMH-11 (Only BRL Trials)	2010-11, 2011-12	2	2	2589	

Comments:

Yield advantage of DMH 11 over existing varieties is considerably high, but the data of MSY of DMH-11 is **just from one location-Kumher**.

Ref: AICRP Reports and BRL Reports

DMH-11 compared with existing Hybrids (Zone III)

Cultivar	Year of Trials	Number of trial years	Number of Trials	MSY (Kg/ha)	% Difference in MSY of DMH-11 over respective cultivar
Hybrids (MSY based on AICRP trials)					
DMH-1	2004-05, 2007-08 to 2014-15	9	48	2074	24.8
NRCHB-506	2005-06, 2006-07, 2009-10 to 2014-15	8	41	2010	28.8
CORAL -437	2006-07 to 2008-09	3	17	1900	36.3
Transgenic Hybrid (MSY based on BRL trials)					
DMH-11 (Only BRL Trials)	2010-11, 2011-12	2	2	2589	

Comments:

Yield advantage of DMH 11 over two existing hybrids is considerably high, but the BRL trial was conducted at **only one location-Kumher**.

Other Issues related to Quality of Trials

- **Issues with data collection**
- **Issues with reporting of results**

Mean Seed Yield (Kg/ha) during BRL trials is believable?
“Derived Yield vs. Reported Yield” Illustration from Kumher

	2010-11		2011-12	
Entries	As per Pod-seed-test weight Calculation	Actually Reported after harvest	As per Pod-seed-test weight Calculation	Actually Reported after harvest
Varuna Barnase (bn 3.6)	4284	1986	7541	2484
EH2 Barstar (modbs 2.99)	2984	1730	4231	1640
Varuna	4525	1866	7750	2375
EH2	3160	1793	4752	1874
DMH-11	4462	2285	6712	2892
RL 1359/ Maya	4830	2057	5913	2196

Mean Seed Yield (Kg/ha) during BRL trials is believable ?
“Derived Yield vs. Reported Yield”: Illustration from Alwar

	2010-11		2011-12	
Entries	As per Pod-seed-test weight Calculation	Actually Reported after harvest	As per Pod-seed-test weight Calculation	Actually Reported after harvest
Varuna Barnase (bn 3.6)	5758	1789	7596	2098
EH2 Barstar (modbs 2.99)	5211	1842	8391	1582
Varuna	5548	1741	9226	2169
EH2	6194	1716	4659	1609
DMH-11	5612	2516	15342	3158
RL 1359/ Maya	4488	1767	7109	1837

Is this really possible?

Ref: BRL Reports

Difference in reporting the yield, unbelievable data and calculation mistake

Table 8:
Seed yield and other agronomic characteristics of transgenic mustard hybrid DMH-11 (bn 3.6 x modbs 2.99) under BRL-1 2nd Year Trial 2011-12

Parameters Lines	Mean Seed Yield (kg/h)	Mean Days to Maturity	Mean 1000 Seed Weight (gms)	Oil Content (%)	Oil Yield (kg/ha)
Varuna <i>barnase</i> (bn 3.6)	2291	139	5.1	38.4	733.6
Varuna	2272	134	2.6	38.1	532.6
EH-2 <i>barstar</i> (modbs 2.99)	1610.5	138	4.8	40.0	731.2
EH-2	1740.5	134	2.6	38.7	570.5
DMH-11 (bn 3.6 X modbs 2.99)	3024.5	137	3.4	39.8	987.3
RL-1359/Maya	2015.5	143	5.1	39.1	838.5

Reported Yield Version-1

Calculation Mistake?

Unbelievable Figure, Varuna is not a small seeded variety

Unreliable Reporting of BRL-1

Table :6

Seed Yield (Kg/ha) of DMH-11 under Biosafety Trial-1 (BRL-1) 2nd Yr Rabi 2011-12

S. No.	Entry	ICAR Centre		Total	Mean	% Increase over
		Kumher	Alwar			
1	Varuna (barnase)	2862	2419	5281	2640	
2	EH-2 (barstar)	1890	1823	3713	1856	
3	Varuna	2736	2499	5235	2617	32%
4	EH-2	2159	1854	4008	2004	
5	DMH-11	3332	3638	6970	3485	
6	Maya/RL-1359 (ZC)	2530	2116	5303	2653	30%

Reported Yield Version-2

Observations related to susceptibility to Major diseases

Trial	Location	Alternaria Leaf	White Rust	Powdery Mildew	Sclerotinia	Downy mildew	Orobanche
BRL-I, 1st Year (2010-11)	Kumher	All Nil	All Nil	✓	All Nil	All Nil	All Nil
	Alwar	✓	✓	✓	✓	All Nil	✓
	SG nagar	✓	✓	All Nil	All Nil	All Nil	All Nil
BRL-I, 2nd Year (2011-12)	Kumher	✓	✓	✓	All Nil	All Nil	All Nil
	Alwar	✓	✓	All Nil	All Nil	All Nil	✓
	SG nagar	✓	✓	All Nil	All Nil	All Nil	All Nil
BRL-II, (2014-15)	Delhi	✓	✓	-	✓	0	0
	Bhatinda	✓	✓	0	0	0	0
	Ludhiana	✓	✓	0	✓	0	0

IS THIS POSSIBLE & WILL GEAC DEPEND ON SUCH DATA?

Ref: BRL Reports

A case of Reporting for Sclerotinia Rot

January, 2012: Weather Condition at Bharatpur Centre:

Minimum Temp.: 5.5 degree C

Maximum Temp.: 18.9 degree C

Relative Humidity: 75.4%

Rainfall: 24.3 mm

No. of rainy days : 1

IDEAL for the incidence of Sclerotinia Rot (stem rot)

Trial	Centre	Condition	Cultivar	Incidence %	Reference
AICRP	Bharatpur	Artificial	25 cultivars (ALL)	4.1 to 94.9	AICRP Report
DRMR Research (long term trial)	Bharatpur	Field	Rohini	37.9	1
BRL-1, 2 nd Year	Kumher (About 19 Kms from Bharat pur)	Field	All entries of all replications	NIL	BRL Report

This is an illustration, amongst several others that creates doubts on the accuracy and competence of the team involved in recording data.

1: Pankaj Sharma & P. D. Meena & Amrender Kumar & Vinod Kumar & D. Singh (2015) ,Forewarning models for Sclerotinia rot (*Sclerotinia sclerotiorum*) in Indian mustard (*Brassica juncea* L.), *Phytoparasitica* 43: 509-516

Observations related to susceptibility to insect pests

Trial	Location	Mustard Aphid	Painted Bug	Leaf Miner	Cabbage Butterfly	Mustard Sawfly	Termites
BRL-I, 1st Year (2010-11)	Kumher	✓	All Nil	All Nil	All Nil	All Nil	All Nil
	Alwar	✓	✓	All Nil	All Nil	All Nil	All Nil
	SG nagar	✓	All Nil	All Nil	All Nil	All Nil	All Nil
BRL-I, 2nd Year (2011-12)	Kumher	✓	All Nil	All Nil	All Nil	All Nil	All Nil
	Alwar	✓	All Nil	All Nil	All Nil	All Nil	All Nil
	SG nagar	All Nil	All Nil	All Nil	All Nil	All Nil	All Nil
BRL-II, (2014-15)	Delhi	✓	0	0	0	0	0
	Bhatinda	0	0	0	0	0	0
	Ludhiana	0	0	0	0	0	0

IS THIS POSSIBLE & WILL GEAC DEPEND ON SUCH DATA?

Ref : BRL Trial Reports

Observations related to beneficial insects

Trial	Location	Coccinelids	Chryso-pherla	Syrphid Fly	Honeybee
BRL-I, 1st Year (2010-11)	Kumher	All Nil	All Nil	All Nil	✓?
	Alwar	All Nil	All Nil	All Nil	✓?
	SG nagar	All Nil	All Nil	All Nil	✓?
BRL-I, 2nd Year (2011-12)	Kumher	All Nil	All Nil	All Nil	✓?
	Alwar	✓	All Nil	All Nil	✓?
	SG nagar	All Nil	All Nil	All Nil	✓?
BRL-II, (2014-15)	Delhi	✓	0	0	✓?
	Bhatinda	0	0	0	✓?
	Ludhiana	0	0	0	✓?

WILL THE REGULATORS BELIEVE THIS KIND OF DATA?

IS IT A CASE OF INSECTS NOT BEING PRESENT OR NO OBSERVATIONS MADE AT ALL?

Ref : BRL Trial Reports

Inconsistencies in Data related to Biomass & method of recording observations

Trial	Location	Range of reported biomass production at maturity (g)	Note
BRL-I, 1st Year (2010-11)	Kumher	362.5 -687.5	Plants were cut from the ground
	Alwar	110 - 150	
	SGnagar	1206.6 – 1430.1	
BRL-I, 2nd Year (2011-12)	Kumher	685 - 870	Plants were cut from the ground
	Alwar	660 - 1400	
BRL-II, (2014-15)	Delhi	188.5 – 244.2	Whole plant was uprooted
	Bhatinda	108.0 – 184.0	
	Ludhiana	0.7 – 0.8	“Incorrect data” as mentioned in the Report. Observations seems to have been taken in Kg.

IS THIS POSSIBLE & WILL GEAC DEPEND ON SUCH DATA? Ref: BRL Reports

Impossible Harvest Index (%) during BRL Trials

Entry/ Location	Kumher		Alwar		SGnagar
Year	2010-11	2011-12	2010-11	2011-12	2010-11
Varuna Barnase (bn 3.6)	3.79	2.74	13.74	1.80	1.92
EH2 Barstar (modbs 2.99)	3.94	1.86	15.31	1.16	1.68
Varuna	4.18	3.15	14.88	1.72	2.08
EH2	4.88	2.63	12.21	1.57	1.55
DMH-11	3.32	3.40	15.91	1.29	2.04
Maya/RL1359	3.93	2.81	11.88	0.99	1.51

Mean of Indian Germplasm: 16.0 Range: 5.00-28.83

Ref: Computed from biomass and yield recorded in BRL Report and DRMR Annual Report: 2013-14

**Data Reported is
unbelievable &
inconsistent: Is this about
lack of competence or
integrity or both? GEAC to
investigate.**

**ANY DECISION-MAKING BASED
ON SUCH DATA RECORDING,
SUCH ANALYSIS, SUCH
CONCLUSIONS & REPORTING IS
OUTRIGHT UNSCIENTIFIC AND
UNACCEPTABLE.**

**Those who are for
promoting
GOOD SCIENCE
SHOULD NOT APPROVE
DMH-11**

Thanks