

मात्र कार्यालयीन उपयोग हेतु
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कार्यवृत्त Proceedings

अखिल भारतीय समन्वित खरपवार प्रबंधन परियोजना
की XXIV वार्षिक समीक्षा बैठक

XXIV Annual Review Meeting of
All India Coordinated Research
Project on Weed Management

स्थान
महाराणा प्रताप कृषि एवं प्रौद्योगिकी विश्वविद्यालय
उदयपुर (राजस्थान)

27–28 फरवरी, 2017

Held at

Maharana Pratap University of Agriculture & Technology
Udaipur (Rajasthan)

27-28 February, 2017



भा.कृ.अनु.प.-खरपवार अनुसंधान निदेशालय
जबलपुर-482 004 (म.प्र.)
ICAR-Directorate of Weed Research
Jabalpur - 482 004 (M.P.)
(ISO 9001:2015 Certified)



**Proceedings of
XXIV Annual Review Meeting
All India Coordinated Research Project on Weed Management
27--28 February, 2017
Maharana Pratap University of Agriculture & Technology
Udaipur (Rajasthan)**

27 February, 2017

INAUGURAL SESSION

Inaugural session was graced by the presence of Dr. U.S. Sharma, Vice-Chancellor, MPUAT, Udaipur, Dr. S.S. Burark, Director Research, MPUAT; Dr. S. Bhaskar, Assistant Director General (Agronomy, Agroforestry & Climate Change), ICAR, New Delhi; Dr. Jay G. Varshney, Ex-Director, ICAR-DWR, Jabalpur; Dr. Shobha Sondhia, I/C AICRP-WM, ICAR-DWR, Jabalpur; Dr. Arvind Verma, Principal Investigator, AICRP-WM, MPUAT, Udaipur centre and chaired by Dr. A.R. Sharma, Director, ICAR-DWR, Jabalpur. Dr. Jay G. Varshney, Ex-Director, ICAR-DWR, Jabalpur was invited as resource person for this meeting.

The scientists of coordinating centres, volunteer centres, ICAR Institutes, Nodal Officers from ICAR-DWR, Jabalpur, staff of MPUAT, Udaipur and representative of herbicide industry (Bayer Crop Science) attended the meeting. After lighting of the lamp by the Chief Guest, Dr. A.R. Sharma, Director, ICAR-Directorate of Weed Research, Jabalpur welcomed the Chief Guest and participants during inaugural function and delivered welcome address highlighting the menace of weeds and the location-specific research work undertaken under the AICRP-Weed Management. Dr. Bhaskar informed about the review process of various AICRPs by the ICAR. He mentioned to work on integrated crop and weed management to manage problematic weeds. He said that more integrated approach is required among various AICRPs. Dr. Varshney urged to work on priorities based on weed management and resources available. Dr. U.S. Sharma mentioned increasing problem of water hyacinth and *Parthenium*, and emphasized to develop weed management techniques for rainfed situations.

AICRP-WM Best Centre Awards for the year 2016-17 were given to TNAU, Coimbatore and CSKHPKV, Palampur. Vote of thanks was proposed by Dr Arvind Verma, PI, AICRP-WM centre MPUAT, Centre, Udaipur.

TECHNICAL SESSION - I

Presentation of salient findings of AICRP-WM Centres (North zone)

- Chairman** : Dr. S. Bhaskar, ADG (AAF & CC), ICAR
Resource person : Dr. Jay G. Varshney, Ex-Director, ICAR-DWR
Rapporteurs : Dr. T. Girija, KAU, Thrissur
Dr. M.T. Sanjay, UAS, Bengaluru

Before start of the session, homage was paid to Dr. A.P. Singh, Principal Investigator of IGKV, Raipur, who left for heavenly abode on 12.09.2016.

Salient achievements of Directorate of Weed Research were presented by Dr. A.R. Sharma, Director, ICAR-DWR, Jabalpur. He explained the mandate of AICRP on WM centres along with the budget release pattern from ICAR. Only 61.2% of funds were released during the XII Plan, resulting in budget crunch for AICRP on WM centres. Five focussed research programmes on sustainable weed

management, climate change, problem weeds, herbicide residues and on-farm research were launched in multi-disciplinary mode. Research work on weed management in conservation agriculture and organic farming systems was initiated. Entire research farm of the Directorate (150 acres) was covered under CA in a period of 2 years by 2014-15 with 300% cropping intensity following the principles of CA. He expressed some shortcomings like inability to fill the vacant posts, lack of externally funded projects, and poor publication record of scientists of the Directorate.

Dr. Shobha Sondhia, I/C AICRP-WM presented the salient research achievements of the project during 2016-17. She highlighted the location-specific research for developing appropriate weed management technologies and to demonstrate these technologies through on-farm research. She presented the significant achievements of all the 23 centres theme-wise. The progress related to long-pending compilations of the work done on herbicide residues, biology and management of major weeds of cropped and non-cropped lands in each state / region, long-term trials on herbicides/ tillage and technologies generated were undertaken.

Dr. Bhumesh Kumar, Nodal Officer presented the overview of north zone centres, viz. Ludhiana, Pantnagar, Palampur, Hisar and Jammu.

PAU Ludhiana

Dr M.S. Bhullar, Principal Investigator, presented research highlights of PAU, Ludhiana centre.

- *Convolvules arvensis* is emerging as a new weed in wheat fields of Amritsar.
- In rice, residues of pendimethalin, bispyribac-sodium and fenoxaprop at harvest were BDL.
- *Phragmites karka* could be successfully controlled with glyphosate spray in a surface drain.
- Mansuran village has been declared as the first *Parthenium* free village with the collaborative efforts of the weed scientists of PAU Centre.

Comments

- Experiment of *Cuscuta* /berseem was not conducted.
- Use of glyphosate and its associated risk should be checked properly before its recommendation to control *Phragmites* in drain water.

GBPUAT, Pantnagar

Dr. V.P. Singh, Principal Investigator presented research highlights of GBPUAT, Pantnagar centre:

- Studies of biology of three major weeds of the region – *Phalaris minor*, *Medicago denticulate*, *Anagalis arvensis* were conducted
- Oxyfluorfen 0.223 kg/ha, pendimethalin 1.0 kg/ha and 2 HWs in combination with straw mulch at 5 t/ha recorded higher garlic bulb yield.
- In direct- seeded rice demonstration minimum dry matter accumulation, maximum grain yield and B: C ratio was obtained with ready-mix application of penoxsulam+ cyhalofop applied at 135 g/ha followed by application of pendimethalin *fb* bispyribac-Na.

Comments

- Do not use abbreviation/short form of herbicides or commercial name in the presentation or compilation.

CSKHPKV, Palampur

Dr. Dinesh Badiyala, Principal Investigator presented research highlights of CSKHPKV, Palampur centre.

- Conventional tillage + integrated weed management (IWM) in both maize and wheat resulted in significantly higher wheat grain equivalent yield and annual net returns.

- Intercropping of soybean in maize was found to be an effective mean of suppressing grasses, sedges and broad-leaved weeds.
- Bacterial population was significantly higher under intercropping (soybean) + hoeing (2.19×10^6) followed by raised stale seed bed+ hoeing + earthing-up (2.14×10^6).

Comments

- Give specific herbicide recommendation for weed control in wheat.
- Presentation of too much data on table should be avoided.
- Studies on weed management in organic farming systems should be continued in high-value crops.

CCSHAU, Hisar

Dr S.S. Punia, Principal Investigator presented research highlights of CCHAU centre.

- Emergence of *Phalaris minor* was low under ZT wheat with residues ($7.3-9.3/m^2$) as compared to ZT/ CT wheat without residues ($14.7-29.3/m^2$).
- Post-emergence application of acifluorfen 16.5% + clodinafop 8% ECRM at 245-370 g/ha proved very effective against *Digera arvensis* and *T. portulacastrum* but its efficacy against *C. rotundus* was poor.
- *Cannabis sativa* was spreading in wheat fields. Ipomoea with cream coloured flowers was noticed in maize.
- Sequential application of pendimethalin 1.5 kg/ha followed by pinoxaden + metsulfuron 64 g/ha recorded the highest wheat grain yield of 5.8 t/ha with 90% control of *P. minor*.

Comments

- Control of *Orobanche* in tomato and brinjal by post or pre plus post treatments of sulfosulfuron and ethoxysulfuron should be validated at other centres.
- Guidelines for presentation were not followed.

SKUAST, Jammu

Dr B.R. Bazaya, Principal Investigator presented research highlights of Jammu centre.

- In wheat the lowest weed density and biomass, and higher weed control efficiency (WCE), grain yield were recorded with clodinafop + metsulfuron 0.06 kg/ha, followed by clodinafop 0.06 kg/ha + 2, 4-D 0.5 kg/ha. The highest B: C ratio was recorded with clodinafop 0.06 kg/ha + 2, 4-D 0.5 kg/ha followed by clodinafop + metsulfuron 0.06 kg/ha.
- *Cyperus* spp. and *Echinochloa* spp. were effectively controlled by mustard seed meal 2.5 t/ha than other organic weed management treatments.
- $CuSO_4 + 2, 4D$ sodium salt padding gave good control of *Loranthus*.

Comments

- Avoid too much running matter and data during presentation.
- Studies on weed management in organic farming systems should be done in high-value crops.

General comments north zone

- Dr. Jay G. Varshney observed that the herbicide resistance in weeds may be due to usage of spurious herbicides and faulty method of application. He advocated crop rotation to check this problem.
- Dr. A.R. Sharma complimented all the centres for their good work and stressed the need for considering the cost of organic inputs used for weed management.
- Dr. S. Bhaskar concluded the session with the remarks that when organic weed management is discussed, the usage of herbicide like pendimethalin should be restricted to control treatment

alone. He also raised the concern about the phytotoxicity of tembotrione to certain hybrids of maize.

TECHNICAL SESSION - II

Presentation of salient findings of AICRP-WM Centres (Central zone)

Chairman	:	Dr. P.L. Maliwal, Ex. Professor (Agronomy), MPUAT
Resource person	:	Dr. Jay G. Varshney, Ex-Director, ICAR–DWR
Rapporteurs	:	Dr. Neelam Sharma, CSKHPKV, Palampur Dr. Simerjeet Kaur, PAU, Ludhiana

Dr. P.J. Khanakhane, Nodal Officer presented the overview of central zone centres. He pointed out that almost all the allotted experiments were conducted by respective centers.

RVSKVV, Gwalior

Dr Asha Arora, Principal Investigator presented research highlights of Gwalior centre.

- No phytotoxic effect of imazethapyr alone and in combination of pendimethalin + imazethapyr applied in blackgram was observed on succeeding mustard crop.
- In pearl millet-mustard-green gram cropping system, CT-CT in mustard gave maximum yield and the highest B: C ratio was recorded in ZT-ZT+R-ZT.

Comments

- Centre needs improvement.
- Farmers' practice should be included in OFRs.
- Sensitive plants must be screened for bioassay studies.

IGKV, Raipur

Dr. M.C. Bhambri, Principal Investigator presented significant research achievements of the centre.

- *Malva pusila*, *Cenchrus ciliaris* and *Chromolaena* are replacing *Parthenium*.
- After completion of sixth year of long-term herbicide trial in DSR-chickpea cropping system, the dominance of *Celosia argentea* was noticed, which suppressed the growth of *Alternanthera triandra*.
- Grain yield of rice under CT-PTR was higher than ZT-DSR.
- Significantly higher grain yield of rice was recorded under pyrazosulfuron 20 g/ha *fb* penoxsulam 22.5 g/ha PoE than unweeded check.

Comments

- Improvement in publications is required.
- Number of slides and timeliness should be followed while presentation.

NDUAT, Faizabad

Dr. R.K. Pathak, Microbiologist of Faizabad centre presented the significant achievements of the centre.

- Maximum grain and straw yield of wheat was obtained under CT (T) and IWM.
- In garlic, IWM involving oxyfluorfen 0.223 kg/ha + paddy straw mulch 10 t/ha was found most effective to control all types of weeds.

- In turmeric, rice straw mulch 10 t/ha + 50% N by press mud and 50% N by (vermicompost) followed by straw mulch 10 t/ha + FYM 20 t/ha found most effective against all type of weeds at 60 and 120 days after sowing.

Comments

- Publish in NAAS rated journals only.
- The centre has not shown adequate improvement in terms of research publications, presentation of annual report and also in herbicide residue research over the years.

RAU, Pusa

Dr. D.K. Roy, Principal Investigator presented research highlights of Pusa centre.

- Highest gross, net returns and B: C ratio was recorded under CT (T)-ZT-ZT and was at par with CT (DS)-CT-ZT in rice.
- The highest grain yield of rice (4.90 t/ha) was recorded by the treatment 50% RDN through inorganic source + 50% RDN through vermicompost which was statistically at par with 75% RDN through inorganic source + 25% RDN through vermicompost (4.70 t/ha) in main plots.
- Neem cake 200 kg/ha at sowing *fb* soil drenching with metalaxyl MZ 02.% at 20 DAP was found effective in controlling *Orobanche* shoot and produced high tobacco yield (23.92 q/ha), net return and B:C ratio (2.20).

Comments

- Publication needs improvement.
- Include weed data in presentation.
- Check yield and economics.
- Effect of herbicides/treatment on weeds was not mentioned.

TECHNICAL SESSION - III

Presentation of salient findings of AICRP-WM Centres (East Zone)

Chairman	: Dr. P.L. Maliwal, Professor (Agronomy) and Ex- Director Research, MPUAT
Resource person	: Dr. Jay G. Varshney, Ex-Director, ICAR-DWR
Rapporteurs	: Dr. M. Madhavi, PJTSAU, Hyderabad

Dr. Bhmesh Kumar presented an overview of the work done by the east zone centres in place of Dr. P. K. Singh as Nodal Officer.

- AAU, Jorhat centre is yet to compile the data of long-term experiments.
- Suggested effective coordination with other AICRPs.
- No publication from Pasighat and Kalyani centers
- No *Parthenium* awareness week conducted by Pasighat centre

AAU, Jorhat

Dr. J. Deka, Principal Investigator presented research highlights of AAU, Jorhat centre.

- Biodegradable film as mulch in tea & coffee was found effective for weed management.
- *Sacciolepis indica*, a native of SE Asia, now confirmed its migration from non-cropland situation to become common grassy weed of transplanted rice ecosystems in Assam.
- Weed shifts were recorded from *Oxalis debilis-Ageratum* complex in 2004-05 to *Stellaria*, *Cyperus brevifolius-Fimbristylis bisumbellata* as dominant weeds in 2015-16 in *Rabi*-vegetables at East Jorhat Development Block.

Comments

- Relative density of dominant weed flora should be given.
- Irrigation to mulching plot need to be validated.
- Weed intensity (%) can also be included along with table.
- Check dose of oxyfluorfen that caused toxicity in blackgram and greengram. Use of post emergence herbicide should also be explored.

OUAT, Bhubaneswar

Dr. M.M. Mishra, Principal Investigator presented research highlights of OUAT, Bhubaneswar.

- Conventional tillage (transplanted rice) in *Kharif* followed by zero tillage maize in *Rabi* and zero tillage in summer (cowpea) with recommended herbicides resulted in the highest system productivity with minimum weed count & dry matter.
- Stale seed bed followed by application of pendimethalin 1 kg /ha recorded the lowest *Cuscuta* density the highest yield in niger crop.

Comments

- For *Orobanche* control use sulfosulfuron instead of ethoxysulfuron.
- *Cuscuta* density should be expressed as % coverage.
- Advised to follow guidelines in reporting.
- Pre-emergence application of pendimethalin for control of *Cuscuta* was suggested.

BAU, Ranchi

Dr. R.R. Upsani, Principal Investigator presented research highlights of of BAU, Ranchi.

- Treatment consisted of plastic mulch recorded significantly higher fresh okra yield, net returns and B: C ratio as compared to straw mulch, cover crops (cowpea), and chemical weed management treatments.
- *Coronopus didymus* is serious weed in winter pulses, for which no suitable herbicides are available at present.

Comments

- Presentation and slides were of poor quality.
- Improve publication record.

CAU, Pasighat

Dr. Dinesh Shah, Principal Investigator of CAU, Pasighat centre presented salient research highlights.

- In okra, plastic mulch and application of pendimethalin along with hand weeding at 30 days after sowing were effective in controlling weeds and improvement in yield.
- In sweet corn, hand weeding at 25 and 50 days after sowing, maize+ soybean (1:1) and maize + black gram (1:1) intercropping were effective in controlling weeds and resulted in higher number of green cob per hectare.
- Application of oxyfluorfen as PE + one HW 30 DAP coupled with slashed grass mulch were found feasible to realize higher crop yield and more net returns in ginger.

Comments

- Recommendations of previous years were not followed to work on organic farming.

BCKVV, Kalyani

Dr. BC Patra, Principal Investigator presented salient research highlights of Kalyani centre.

- No posts were filled up.
- Not taken up any technical program.
- It was suggested to initiate research work on weed management in conservation agriculture and organic farming systems immediately.

General observations

- Some good recommendations should come out from research which is important from farmer's point of view.
- Weed density, weed dry matter, yield and economics are required to be presented.
- Statistical analysis is not required in net returns.
- Experiments in which yields are low need not to be reported.
- Avoid trials in blackgram and greengram for weed control with pendimethalin which are well established.

28 February, 2017

TECHNICAL SESSION - IV

Presentation of salient findings of AICRP-WM Centres (West Zone)

Chairman	: Dr. V. Nepalia, Prof. and Head, Department of Agronomy, MPUAT
Resource person	: Dr. Jay G. Varshney, Ex-Director, ICAR–DWR
Rapporteurs	: Dr. S.S. Punia, CCSHAU, Hisar Dr. K.M. Durgadevi, KAU, Thrissur

Dr. R.P. Dubey, Nodal Officer, West zone, presented an overview of achievements, constraints and monitoring reports.

AAU, Anand

Dr. B.D. Patel, Principal Investigator presented the achievements of the centre.

- *Celosia argentea* was recorded as a major weed in different crops and cropping systems.
- Clodinafop+metsulfuron 64 g/ha or sulfosufuron+metsulfuron 32 g/ha was found suitable for weed management in wheat.
- Paddy straw mulch 5 t/ha with pendimethalin 1.0 kg/ha was found suitable for weed management in garlic.
- Imazethapyr 80 g/ha was found suitable for weed management in greengram
- Pendimethalin 0.25 kg/ha + atrazine 0.5 kg/ha was found suitable for weed management in maize
- Imazethapyr 40 g/ha was found suitable for *Cuscuta* management in Lucerne

Comments

- Guidelines for annual report were not followed.
- Need to improve publication record.

DBSKKV, Dapoli

Dr. S.B. Gangwane, Principal Investigator presented the achievements of the centre.

- Application of oxadiargyl 0.1kg/ha + 1 HW at 40 DAS exhibited highest WCE in terms of growth of weeds and consequently grain and straw yield of rice.
- Green manuring significantly increased rice yield.

- Two recommendations for weed management have been given.
- For obtaining effective weed control, higher yield and net returns in rice-groundnut cropping system, incorporation of green manure (*Sesbania rostrata*) and application of pretilachlor 0.75 kg/ha at 3 to 7 DAT in *Kharif* rice and pendimethalin 1.0 kg/ha at 2 to 3 DAS in *Rabi* groundnut was recommended in Konkan region.

Comments

- Presentation needs improvement.
- Reason for less yield of mustard in some of the experiments should be described.
- Try SRT technology developed at Saguna Baug.
- In CA, hand weeding after flowering of weeds should be done to reduce weed seed bank in soil.
- Plastic mulching should be tried in system as a whole to make it more cost effective.

Dr. PDKV, Akola

Dr. J.P. Deshmukh, Principal Investigator presented the achievements of the centre.

- *Cuscuta* is a major problem in soybean, pigeonpea and greengram.
- Application of atrazine 0.5 kg/ha *fb* 2, 4-D sodium salt 0.5 kg/ha was found suitable for weed management in maize.
- Propaquizafop 0.1 kg/ha as POE or imazethapyr + imazamox 0.1 kg/ha provided higher yield and profit of groundnut in *Kharif*.
- Integrated use of straw mulch along with pendimethalin 1.0 kg/ha or by metribuzin 0.7 kg / ha (0-5 DAP) *fb* straw mulch 10 t/ha (10 DAP) *fb* one HW (75 DAP) was found effective for weed control and attaining highest productivity and profitability in turmeric.

Comments

- Too much herbicide load should be avoided in rhizomatous crops like turmeric.
- Study carryover effect of herbicides on turmeric.

MPUAT Udaipur

Dr A. Verma,

Principal Investigator presented the achievements of the centre.

- Sulfosulfuron+metsulfuron 32 g/ha was found suitable for weed management in wheat.
- Application of acifluorfen +clodinafop 370 g/ha and pyroxasulfone as pre-emergence 127.5 g/ha was found suitable for weed management in greengram.
- In organic farming, plastic mulching was found most effective in controlling weeds in sweet corn/fennel.

Comments

- Environmental issues on use of plastic mulching should be considered.
- University support is needed to fill the vacant posts and provision of lab/sitting place.

General comments

- More efforts are required for *Parthenium* free campus in the respective centres.
- Follow guidelines while preparing of report and presentation in ARM.
- More OFT/OFR should be conducted.
- Publication record of this zone has improved.
- Frequent shifting of PI at Dapoli cantre should be stopped.

Presentation of salient findings of AICRP-WM Centres (South zone)

Chairman	: Dr. M.K. Porwal, Former Professor and Head (Agronomy), MPUAT
Resource person	: Dr. Jay G. Varshney, Ex-Director, ICAR–DWR
Rapporteurs	: Dr. J. Deka, AAU, Jorhat Dr. P. Janki, TNAU, Coimbatore

Dr. Sushil Kumar, Nodal Officer of South zone presented the progress of five centres namely: Hyderabad, Bengaluru, Thrissur, Coimbatore and Raichur. He highlighted the budget, staff position, action taken report, progress of work and publication made by south centre. He informed the house about the impact of *Neochetins* spp. in one of ponds in Hyderabad. He suggested that uniformity of annual report should be followed by the centres.

PJTSAU, Hyderabad

Dr. M. Madhavi, Principal Investigator presented research highlights of the centre.

- Live mulches of *Daincha*, *Phaseolus* and horse gram were proved ineffective in okra.
- Metribuzin caused toxicity in beet root.
- Significantly lower weed biomass and higher grain yield and BC ratio was recorded with conventional transplanted rice over direct seeded aerobic rice under conventional or zero tillage
- Higher system productivity, net returns and B: C obtained with *Kharif* rice under CT followed by maize under conventional tillage and zero tillage in rice-maize-green manure cropping system.
- Pre-emergence application of alachlor 1000 g/ha *fb* hand weeding at 30 DAS or pre-emergence application of oxadiargyl 75 g/ha *fb* hand weeding at 30 DAS was found effective in beetroot.
- Residues of bispyribac-sodium in soil, rice grain and straw at harvest were below the detectable limit in aerobic and transplanted rice treatments.

Comments

- Biology of problematic weed, WP.3.1 and WP.5.1 were not conducted.
- Centre should check about dose of pendimethalin and B: C ratio especially 1:12 and check the compatibility of atrazine and paraquat.
- Check dose of 2, 4-D sodium salt in *Rabi* maize.
- Recommendation made by QRT should be implemented
- Publication should be done in journal having more than 6 NAAS rating.

UAS, Bengaluru

Dr. M.T. Sanjay Jr. Agronomist, presented the salient findings of UAS, Bengaluru centre.

- Out of 10 experiments, 2 were not conducted (*Cuscuta* and ginger).
- Pyrazosulfuron-ethyl at 25 g/ha – 3 DAP/S followed by passing conoweeder–45 DAS/P) recorded significantly higher rice grain yield.
- Pigeonpea + soybean intercropping in 1: 2 row proportion with alachlor 1.0 kg/ ha *fb* imazethapyr + imazamox (premix) at 2-3 leaf stage of weeds recorded higher WCE at 60 DAS and lower weed index.
- More than ten recommended practices were developed during 2016 for different crops.

- Bispyribac-sodium dissipated quickly and no residues were found in rice grain, straw and soil at harvest.

Comments

- Only 40 pages were submitted during 2016. Annual report should be improved and prepared according to guidelines.
- Compilation on herbicide residue is still pending since 2014.
- Use of herbicide should be rationalized.
- Centre needs drastic improvement in adhering guidelines for annual report, presentation and submission of information to the PC unit.
- Herbicide active ingredient (a.i.) and formulation should not be used in presentation.

UAS, Raichur

Dr. R. B. Negalur, Principal Investigator presented research highlights of the centre.

- Application of pretilachlor *fb* hand weeding recorded significantly lower weed population, weed biomass at all the stages. Net returns and BC were higher with application of pretilachlor *fb* bispyribac-sodium in rice.
- Application of ready mix combination of imazethapyr + imazamox applied at 3-4 leaf stage of weed was found effective to control weeds in blackgram.

KAU, Thrissur

Dr. K.P. Prameela, PI presented research highlights of the centre.

- Wild growth of invasive alien plant *Hypoestes phyllostachya* was noted in Palakkad district and Wayanad Wild Life Sanctuary (WWS).
- Dehydrogenase enzyme activity of soil was unaffected by methods of weed control in brinjal.
- Polythene mulching recorded highest fruit number and fruit yield in brinjal.

Comments

- Publication record of this centre needs improvement.
- Presentation needs improvement.

TNAU, Coimbatore

Dr C. Chinnusamy, Principal Investigator presented research highlights of the centre.

- In maize – sunflower cropping system, significantly higher grain yield and economics were recorded in zero tillage in ZT-ZT+R system and in PE pendimethalin at 1.0 kg/ha + HW at 45 DAS in sunflower crop. Whereas, in maize, CT-CT system and in PE atrazine at 0.5 kg/ha + HW at 45 DAS recorded higher productivity as well as income in maize.
- Higher beet root tuber yield was found after application of crop residue mulching 5 t/ha with better weed control efficiency under organic cultivation.
- Residue of herbicides applied in rice crop were below detectable level (0.01 mg/kg) in soil, rice grain and straw samples at harvest stage.
- *Ammannia baccifera* showed quick multiplication rate in period of 90-120 days and produced about 7200 - 8100 seeds per plant.
- In CA under maize-sunflower cropping system, the persistence of atrazine and pendimethalin was not influenced by different tillage and weed management practices with and without residues.
- Quizalofop-ethyl residues were found below detectable level (0.01 mg/kg) in harvest samples of onion plant, bulb and field-soil irrespective of doses of applications.

Comments

- Clarification on use of corn flour need to be validated properly.
- Presentation made by centre was appreciated.

General comments

- Studies on well established herbicide such as pendimethalin should be avoided.
- Weedy rice problem is about 30-40 % in Tamil Nadu, Kerala
- Doing repeated research on no detectable limit of herbicide molecule should be avoided
- Work on development of slow release herbicide should also be started.
- Climate based recommendation of herbicides should be done
- Studies of super weed problem in GM crops should be initiated.

TECHNICAL SESSION–VI

Presentation of salient findings by Principal Investigators of volunteer centres and ICAR institutes

Chairman	: Dr. M.K. Porwal, Former Professor and Head (Agronomy), MPUAT
Resource person	: Dr. Jay G. Varshney, Ex-Director, ICAR–DWR
Rapporteurs	: Dr. Navjyot Kaur, PAU, Ludhiana Dr Anil Duhan, CCSHAU, Hisar

Principal Investigators of four volunteer centres and ICAR institutes presented salient findings of their centres:

SKUAST, Srinagar

Dr Raihana Habib Kant presented salient findings of SKUAST, Sri Nagar (Jammu and Kashmir)

- Conducted two research experiments and also organized Weed Quiz.
- Metribuzin plus oxyfluorfen was reported to be best treatment for chemical weed management in saffron.
- In transplanted rice, application of bispyribac sodium plus azimsulfuron 15 days after transplanting provided best weed management.
- She also informed the house that recommendations made in other part of country are not applicable in adverse climatic conditions of Sri Nagar (J&K).

Comments

- Work done by centre was appreciated.
- Dr Sharma suggested to give unspent budget allotted to OUAT, Bhubaneswar under TSP to Srinagar centre.

BAU, Sabour

Dr G.S. Panwar, Principal Investigator presented salient findings of Sabour centre.

- Weed surveillance and monitoring in direct-seeded and transplanted rice, pigeonpea, linseed, *Kharif* and *Rabi* pulses were done.
- *Cleome viscosa* emerged as a new weed in *Kharif* pulses. Pinoxaden plus metsulfuron was found to be best herbicide combination for control of complex weed flora in wheat.
- Imazethapyr in pigeonpea and pendimethalin *fb* bispyribac sodium in DSR were found best chemical weed management options.
- Centre also observed *Parthenium* Awareness Week and efforts were made by centre to make their campus free from this noxious weed.

Comments

- While comparing the herbicide treatments with hand weeding, they should calculate economics rather than yield increase.

ICAR-IVRI, Izatnagar

Dr. P. K. Mukherjee, Sr. Scientist (Agronomy) presented an overview of the achievements made by ICAR-IVRI, Izatnagar.

- He apprised that mostly no herbicides are used in fodder crops.
- Cowpea effectively competed with *Trianthema portulacastrum* and showed good smothering effect on weeds.
- Many green manuring crops like *Sesbania* and *Crotalaria* also competed against weeds.
- Incorporation of *T. portulacastrum* before 10 days after its emergence can also effectively manage this weed.
- Cowpea also suppressed *Celosia argentea* associated with sorghum.

Comments

- Atrazine residues in maize fodder should be re-checked.

PJNCA & RI, Pondicherry

Dr. P. Saravanane, Principal Investigator presented research highlights of the centre.

- Triafamone plus ethoxysulfuron in transplanted rice and pendimethalin *fb* bispyribac sodium in direct-seeded rice were reported to be best herbicide combinations for control of complex weed flora.
- The centre also conducted preliminary study on herbigation in DSR in which best results were achieved with pyrazosulfuron. However, application of pendimethalin by herbigation caused injury to the crop.
- High moisture content could be the cause of pendimethalin toxicity in DSR.

Comments

- Care should be taken during observation and reporting weeds control efficiency.

PLENARY SESSION

Chairman : Dr. M.K. Porwal, Former Professor and Head (Agronomy), MPUAT

Co-chairman : Dr. A.R. Sharma, Director, DWR, Jabalpur

In the plenary session felicitation was given to retiring colleagues of AICRP-WM, Dr Jaidev Sharma, Dr Asha Arora, and Dr Dinesh Badaliya. General issues related to weed management and financial issues were discussed. Dr Sharma informed the house that as such no fund is given by the ICAR under instruments and there are meager chances that any fund under this head will come. Hence, do quality but less number of experiments with innovative ideas. It was also suggested that chemical treatment should be kept as check in organic weed management experiments. Sufficient budget under recurring contingency is being given by the head quarter and remaining by the university should be utilized wisely. Dr Sharma asked for availability of chemical control for chickpea and lentil. He also said that weed management techniques should be cost effective and ecosystem should be balanced.

Dr Shobha Sondhia
Incharge, AICRP-Weed Management

Dr P.K. Singh
Director (A.), ICAR-DWR, Jabalpur

**XXIV ANNUAL REVIEW MEETING
ALL INDIA COORDINATED RESEARCH PROJECT ON WEED MANAGEMENT**

ICAR - DIRECTORATE OF WEED RESEARCH, JABALPUR

27-28 FEBRUARY, 2017

**VENUE: MAHARANA PRATAP UNIVERSITY OF AGRICULTURE & TECHNOLOGY
UDAIPUR (RAJASTHAN)**

PROGRAMME

February 27, 2017 (Tuesday)

0830-0930 hrs

REGISTRATION

0930-1030 hrs

INAUGURAL SESSION

1030-1045 hrs

TEA BREAK

1045-1330 hrs

TECHNICAL SESSION – I

**Salient research
achievements of ICAR-
DWR during 2016-17**

: Dr. A.R. Sharma, Director, ICAR - DWR

**Salient achievements of
AICRP on Weed
Management**

: Dr. Shobha Sondhia, Incharge, AICRP–Weed Management

(Presentation of salient findings of AICRP-WM Centres in north zone)

Chairman : Dr. S. Bhaskar, ADG (AAF & CC), ICAR

Resource person : Dr. Jay G. Varshney, Ex-Director, ICAR–DWR

Rapporteurs : Dr. T. Girija and Dr. M.T. Sanjay

An Overview of north zone centres by Dr. Bhumesh Kumar, Nodal Officer

Dr. M.S. Bhullar, PAU, Ludhiana

Dr. V. Pratap Singh, GBPUAT, Pantnagar

Dr. Dinesh Badiyala, CSKHPKV, Palampur

Dr. S.S. Punia, CCSHAU, Hisar

Dr. B.R. Bazaya, SKUAST, Jammu

1330-1430 hrs

LUNCH BREAK

1430-1600 hrs

TECHNICAL SESSION – II

(Presentation of salient findings of AICRP-WM Centres in central zone)

Chairman : Dr. P.L. Maliwal, Ex. Professor (Agronomy), MPUAT

Resource person : Dr. Jay G. Varshney, Ex-Director, ICAR–DWR

Rapporteurs : Dr. Neelam Sharma and Dr. Simerjeet Kaur
An Overview of central zone centres by Dr. P.J. Khankhane, Nodal Officer
Dr. (Smt.) Asha Arora, RVSKVV, Gwalior
Dr. M.C. Bhambri, IGKV, Raipur
Dr. Jaidev Sharma, NDUAT, Faizabad
Dr. D.K. Roy, RAU, Pusa

1600-1615 hrs **TEA BREAK**

1615-1800 hrs **TECHNICAL SESSION – III**
(Presentation of salient findings of AICRP-WM Centres in East Zone)

Chairman : Dr. P.L. Maliwal, Professor (Agronomy) and Ex- Director Research, MPUAT

Resource person : Dr. Jay G. Varshney, Ex-Director, ICAR–DWR

Rapporteurs : Dr. M. Madhavi and Dr. S.K. Guru

An Overview of east zone centres by Dr. P.K. Singh, Nodal Officer
Dr. J. Deka, AAU, Jorhat
Dr. M.M. Mishra, OUAT, Bhubaneswar
Dr. R.R. Upasani, BAU, Ranchi
Dr. Dinesh Sah, CAU, Pasighat
Dr. Bikash Ch. Patra, BCKV, Kalyani

February 28, 2017 (Wednesday)

0900-1030 hrs **TECHNICAL SESSION – IV**
(Presentation of salient findings by Principal Investigators of AICRP-WM Centres in west zone)

Chairman : Dr. V. Nepalia, Prof. and Head, Department of Agronomy, MPUAT

Resource person : Dr. Jay G. Varshney, Ex-Director, ICAR–DWR

Rapporteurs : Dr. S.S. Punia and Dr. K.M. Durgadevi

An Overview of west zone centres by Dr. R.P. Dubey, Nodal Officer
Dr. B.D. Patel, AAU, Anand
Dr. S.B. Gangwane, DBSKKV, Dapoli
Dr. J.P. Deshmukh, PDKV, Akola
Dr. Arvind Verma, MPUAT, Udaipur

1030-1045 hrs **TEA BREAK**

1045-1215 hrs

TECHNICAL SESSION –V

(Presentation of salient findings of AICRP-WM Centres in south zone)

- Chairman** : Dr. M.K. Porwal, Former Professor and Head (Agronomy), MPUAT
Resource person : Dr. Jay G. Varshney, Ex-Director, ICAR–DWR
Rapporteurs : Dr. I.C. Barua and Dr. P. Janki

An Overview of south zone centres by Dr. Sushil Kumar, Nodal Officer
Dr. M. Madhavi, PJTSU, Hyderabad
Dr. G.N. Dhanapal, UAS, Bengaluru
Dr. R.B. Negalur, UAS, Raichur
Dr. K.P. Prameela, KAU, Thrissur
Dr. C. Chinnusamy, TNAU, Coimbatore

1215-1330 hrs

TECHNICAL SESSION –VI

(Presentation of salient findings by Principal Investigators of volunteer centres and ICAR institutes)

- Chairman** : Dr. M.K. Porwal, Former Professor and Head (Agronomy), MPUAT
Resource person : Dr. Jay G. Varshney, Ex-Director, ICAR–DWR
Rapporteurs : Dr. Parvinder Kaur and Dr Anil Duhan

Dr. Raghuvir Singh, SVBPUAT, Meerut
Dr. Raihana Habib Kant, SKUAST, Srinagar
Dr. G.S. Panwar, BAU, Sabour
Dr. P. Saravanane, PJNCA & RI, Pondicherry
Dr. P.K. Mukherjee, ICAR-IVRI, Izatnagar
Dr. B. Gangaiah, ICAR-CIARI, Port Blair

1330-1430 hrs

LUNCH BREAK

1430-1530 hrs

TECHNICAL SESSION –VII

(General discussion, financial issues, interaction with herbicide industry etc.)

1530-1730 hrs

CONCLUDING / PLENARY SESSION (Presentation of summary recommendations)

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|-----|--------------------|---------------------|
| 19. | Mr. D.D. Chaudhari | Jr. Agronomist |
| 20. | Dr. Akash Mishra | Jr. Residue Chemist |
| 21. | Dr. H.K. Patel | Jr. Microbiologist |

N.D. UNIVERSITY OF AGRICULTURE & TECHNOLOGY, FAIZABAD

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|-----|------------------------|-------------------------------------|
| 22. | Dr. Jai Dev Sharma | Agronomist & Principal Investigator |
| 23. | Dr. Ravi Shankar Singh | Jr. Agronomist |
| 24. | Dr. Raj Kumar Pathak | Jr. Microbiologist |

TAMILNADU AGRICULTURAL UNIVERSITY, COIMBATORE

- | | | |
|-----|-------------------------|------------------------------------|
| 25. | Dr. C. Chinnusamy | Professor & Principal Investigator |
| 26. | Dr. P. Murali Arthanari | Jr. Agronomist |
| 27. | Dr. A. Ramalakshmi | Jr. Microbiologist |

CCS HARYANA AGRICULTURAL UNIVERSITY, HISAR

- | | | |
|-----|--------------------|---|
| 28. | Dr. S.S.Punia | Sr. Agronomist & Principal Investigator |
| 29. | Dr. Narendra Singh | Assitant Agronomist |
| 30. | Dr Anil Duhan | Jr. Residue Chemist |

RAJMATA VIJAYARAJE SCINDIA KRISHI VISHWA VIDYALAYA, GWALIOR

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| 31. | Dr. Asha Arora | Pr. Scientist (Residue Chemistry) & Principal Investigator |
| 32. | Dr. D.S. Sasode | Agronomist |
| 33. | Dr. Varsha Gupta | Jr. Agronomist |

RAJENDRA AGRICULTURAL UNIVERSITY, PUSA, BIHAR

- | | | |
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| 34. | Dr. D. K. Roy | Agronomist & Principal Investigator |
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BIRSA AGRICULTURAL UNIVERSITY, RANCHI

- | | | |
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| 35. | Dr. R.R. Upasani | Professor & Principal Investigator |
| 36. | Mr. A. N. Puran | Jr. Microbiologist |
| 37. | Dr. (Mrs.) Sheela Barla | Jr. Agronomist |

ODISHA UNIVERSITY OF AGRICULTURE & TECHNOLOGY, BHUBANESHWAR

- | | | |
|-----|-----------------|-------------------------------------|
| 38. | Dr. M.M. Mishra | Agronomist & Principal Investigator |
| 39. | Dr. R. Dash | Jr. Agronomist |
| 40. | Mr. M.M. Behera | Jr. Residue Chemist |

PUNJAB AGRICULTURAL UNIVERSITY, LUDHIANA

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|-----|-------------------------|-------------------------------------|
| 41. | Dr. M.S. Bhullar | Agronomist & Principal Investigator |
| 42. | Dr. Simerjeet Kaur | Asstt. Agronomist |
| 43. | Dr (Mrs) Navjyot Kaur | Assistant Plant Physiologist |
| 44. | Dr (Mrs) Parvinder Kaur | Residue chemist |

G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANTNAGAR (U.P.)

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|-----|---------------------|---|
| 45. | Dr. V. Pratap Singh | Professor (Agronomy) & Principal Investigator |
| 46. | Dr. T.P. Singh | SRO, Agronomy |
| 47. | Dr. Shishir Tandon | Jr. Scientist (Residue Chemistry) |
| 48. | Dr. S.P. Singh | JRO, Agronomy |

CSK HIMACHAL PRADESH KRISHI VISHVA VIDHYALAYA, PALAMPUR

- | | | |
|-----|-------------------------|-------------------------------------|
| 49. | Dr. Dinesh Badiyala | Agronomist & Principal Investigator |
| 50. | Dr. S.S. Rana | Agronomist |
| 51. | Dr. (Mrs) Neelam Sharma | Residue Chemist |
| 52. | Dr. Rajinder Kumar | Jr. Microbiologist |

KERALA AGRICULTURAL UNIVERSITY, THRISSUR

- | | | |
|-----|--------------------|-----------------------------|
| 53. | Dr. K.P. Prameela | Principal Investigator |
| 54. | Dr. T. Girija | Plant Physiologist |
| 55. | Dr. V. Meera Menon | Assoc. Professor (Agronomy) |

ASSAM AGRICULTURAL UNIVERSITY, JORHAT

- | | | |
|-----|--------------------|--|
| 56. | Dr. J. Deka | Principal Scientist & Principal Investigator |
| 57. | Dr. N.C. Deka | Principal Scientist, Agronomy |
| 58. | Ms. Kaberi Mahanta | Jr. Residue Chemist |

UNIVERSITY OF AGRICULTURAL SCIENCES, BENGALURU

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| 59. | Dr. M.T. Sanjay | Jr. Agronomist |
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I.G. KRISHI VISHVA VIDYALAYA, RAIPUR

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| 60. | Dr. M.C. Bhambri | Principal Scientist & Principal Investigator |
| 61. | Dr. Tapas Choudhary | Jr. Microbiologist |
| 62. | Dr. Nitish Tiwari | Jr. Agronomist |

Dr. BALASAHEB SAWANT KONKAN KRISHI VIDHYA PEETH, DAPOLI

- | | | |
|-----|--------------------|-------------------------------------|
| 63. | Dr. S.B. Gangawane | Agronomist & Principal Investigator |
| 64. | Dr. S.S. Pinjari | Jr. Agronomist |

UNIVERSITY OF AGRICULTURAL SCIENCES, RAICHUR

- | | | |
|-----|------------------|---|
| 65. | Dr. R.B. Negalur | Asstt. Professor (Agronomy) & Principal Investigator |
| 66. | Dr. N. Anand | Jr. Agronomist |

**MAHARANA PRATAP UNIVERSITY OF AGRICULTURE AND TECHNOLOGY,
UDAIPUR**

67.	Dr. Arvind Verma	Asstt. Professor (Agronomy) & Principal Investigator
68.	Dr. Roshan Choudhary	Jr. Agronomist
69.	Dr. V. Nepalia	Prof. & Head (Agronomy)
70.	Dr. S.S. Burark	Director Research
71.	Dr. M.K. Porwal	Ex-Head, Deptt of Agronomy, MPUAT
72.	Dr. P.L. Maliwal	Professor (Agronomy) and Ex- Director Research, MPUAT
73.	Dr. Dilip Singh	Prof. Agronomy
74.	Dr. S.L. Mundra	Prof. Agronomy
75.	Dr. (Mrs.) Anila Doshi	Dean, RCA
76.	Dr. R.S. Choudhary	Asstt. Professor, Agronomy
77.	Dr. S.K. Sharma	Professor & ZDR
78.	Dr. R.B. Dubey	Professor & Head, PBG
79.	Dr. H.N. Purohit	Professor & Head, Soil Science
80.	Dr. H.K. Jain	Professor & Head, Statistic
81.	Dr. R. Swaminathan	Professor & Head, Entomology
82.	Dr. D.K. Jajoria	Assistant Professor
83.	Dr. Virendra Singh	Assistant Professor
84.	Mr. Tikendra Kumar	PhD Student
85.	Dr. S.K. Sharma	PRO, Press
86.	Mrs. Santosh Saurotha	SRF
87.	Mr. Naresh Kumar	SRF
88.	Mr. Sourabh Kumar Yadav	SRF

CENTRAL AGRICULTURAL UNIVERSITY, PASIGHAT

89.	Dr. Dinesh Sah	Asstt. Professor (Agronomy) & Principal Investigator
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DR. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA

90.	Dr. J.P. Deshmukh	Assoc. Professor (Agronomy) & Principal Investigator
91.	Dr. S.U. Kakade	Jr. Agronomist

**SHER-E-KASHMIR UNIVERSITY OF AGRICULTURAL SCIENCES AND TECHNOLOGY,
JAMMU**

92.	Dr. B.R. Bazaya	Sr. Scientist (Agronomy) & Principal Investigator
93.	Dr. Ramphool Puniya	Asstt. Professor (Agronomy)

BIDHAN CHANDRA KRISHI VISWAVIDYALAYA, KALYANI

94.	Dr. Bikash Ch. Patra	Professor (Agronomy) & Principal Investigator
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PRINCIPAL INVESTIGATORS OF AICRP-WM VOLUNTEER CENTRES

**SHER-E-KASHMIR UNIVERSITY OF AGRICULTURE AND TECHNOLOGY - KASHMIR
SHALIMAR, SRINAGAR**

95. Dr. Raihana Habib Kant Professor & Head (Agronomy)
96. Dr. Parmeet Singh Asstt. Professor, Agronomy

P.J. NEHRU COLLEGE OF AGRICULTURE & RI, KARAIKAL, U.T. OF PONDICHERRY

97. Dr. P. Saravanane Asstt. Professor (Agronomy),
Dept. of Agronomy

BIHAR AGRICULTURAL UNIVERSITY, SABOUR, BHAGALPUR (BIHAR)

98. Dr. G.S. Panwar Associate Professor (Agronomy)

FROM ICAR INSTITUTES

99. Dr. P. K. Mukherjee Sr. Scientist (Agronomy)

FROM INDUSTRY

100. Mr. Nilesh Raghuvanshi Field Development Executive, Bayer Crop
Science Ltd. Jaipur