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This is to certify that **Mr. Deepak Kumar Jat** had successfully completed the Comprehensive Examination held on **…………….** as required under the regulation for the degree of **Master of science in Agriculture (Agronomy).**

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**Date:** \_\_\_\_\_\_\_\_\_\_\_

This is to certify that the thesis entitled **“Evaluation of Water Productivity for Improved Soil and Water Management at the Scheme Scale using CropSyst Model”** submitted for the degree of **Master of Science** in **Agriculture** in the subject of **Agronomy** embodies bonafide research work carried out by **Mr. Deepak Kumar Jat** under my guidance and supervision and that no part of this thesis has been submitted for any other degree. The assistance and help received during the course of investigation have been fully acknowledged. The draft of the thesis was also approved by the advisory committee on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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**CERTIFICATE – III**

**Date:** \_\_\_\_\_\_\_\_\_\_\_

This is to certify that the thesis entitled **“Evaluation of Water Productivity for Improved Soil and Water Management at the Scheme Scale using CropSyst Model”** submitted by **Mr. Deepak Kumar Jat** to the S.K. Rajasthan Agricultural University, Bikaner in partial fulfillment of the requirements for the degree of **Master of Science** in **Agriculture** in the subject of **Agronomy,** after recommendation by the external examiner was defended by the candidate before the following members of the advisory committee. The performance of the candidate in the oral examination on his thesis has been found satisfactory. We therefore, recommend that the thesis be approved.

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**Date:** \_\_\_\_\_\_\_\_\_\_\_

This is to certify that **Mr. Deepak Kumar Jat** of the **Department of Agronomy, College of Agriculture, Bikaner** has made all corrections/modifications in the thesis entitled **“Evaluation of Water Productivity for Improved Soil and Water Management at the Scheme Scale using CropSyst Model”** which were suggested by the external examiner and the advisory committee in the oral examination held on \_\_\_/\_\_\_/2014. The final copies of the thesis duly bound and corrected were submitted on \_\_\_/\_\_\_/2014 and forwarded herewith for approval.

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**ACRONYMS**

|  |  |  |  |
| --- | --- | --- | --- |
| @ | At the rate of | m ha | million hectares |
| % | Per cent | m2 | Square metre |
| AGB | Above ground Biomass | m3 | Cubic metre |
| B:C | Benefit cost ratio | max. | Maximum |
| 0C | Degree Celsius | mg | Milligram |
| Cm | Centimeter | Mg g-1 | Milligram per gram |
| DAS | Days after sowing | Mg m-3 | Mega gram per cubic metre |
| DAP | Di ammonium Phosphate | min. | Minimum |
| dSm-1 | Deci-siemens per metre | mm | Millimeter |
| EC | Electrical conductivity | N | Nitrogen |
| ET | Evapotranspiration | 0N | Degree north |
| et al., | (et alii or et alia) and other people or things | No. | Number |
| Etc | (et cetera) and other similar things | P | Phosphorus |
| FYM | Farm Yard Manure | PET | Potential Evapotranspiration |
| Fig | Figure | R.H. | Relative Humidity |
| GAI | Green Area Index | RMSE | Root Mean Square Error |
| Ha | Hectare | RRMSE | Residue Root Mean Square Error |
| HI | Harvest Index | F. No. | Farmer number |
| hrs. | Hours | SSP | Single Super Phosphate |
| i.e. | (id est) that is | viz. | (Videlicet) namely |
| Kg ha-1 | Kilogram per hectare | WUE | Water Use Efficiency |
| m | Metre | g MJ-1 |  |