

**FUNDAMENTALS OF
AGRONOMY**

FUNDAMENTALS OF AGRONOMY

Dr. R. L. Arya

M.Sc. & Ph.D., Agronomy,

I.A.R.I., PUSA, New Delhi

Ex. Senior Scientist, ICAR-CTRI, Rajahmundry (AP)

Dr. Khalil Khan

M.Sc. (Ag.) Ph.D., Soil Science,

Assistant Professor/Scientist

Directorate o Research

C.S. Azad University of Ag.

Tech Knapur (UP)



Published by
SCIENTIFIC PUBLISHERS (INDIA)
5 A, New Pali Road, P.O. Box 91
Jodhpur 342 001 (INDIA)
E-mail: info@scientificpub.com
Website: <http://www.scientificpub.com>

© 2020 Author

All rights reserved. No part of this publication or the information contained herein may be reproduced, adapted, abridged, translated, stored in a retrieval system, computer system, photographic or other systems or transmitted in any form or by any means, electronic, mechanical, by photocopying, recording or otherwise, without written prior permission from the publisher.

Disclaimer: Whereas every effort has been made to avoid errors and omissions, this publication is being sold on the understanding that neither the editors (or authors) nor the publishers nor the printers would be liable in any manner to any person either for an error or for an omission in this publication, or for any action to be taken on the basis of this work. Any inadvertent discrepancy noted may be brought to the attention of the publisher, for rectifying it in future editions, if published.

This book contains information obtained from authentic and highly regarded sources. Reasonable efforts have been made to publish reliable data and information, but the editors and publisher cannot assume responsibility for the validity of all materials or the consequences of their use. The editors and publisher have attempted to trace and acknowledge the copyright holders of all material reproduced in this publication and apologize to copyright holders if permission and acknowledgment to publish in this form have not been obtained. If any copyright material has not been acknowledged please write and let us know so that we may rectify it.

Trademark Notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

ISBN: 978-93-87991-78-1 (Paperback)
ISBN: 978-93-87741-22-5 (EBook)

Printed in India

Contents

1. Agriculture	1
2. History of Agriculture	8
3. Types of Agriculture	17
4. Conservation Agriculture	20
5. Nanotechnology in Agriculture	26
6. Globalization	30
7. Agro-Ecological Regions of India	31
8. Agroclimatic Zones in India	33
9. Agronomy	35
10. Seed and Sowing	37
11. Classification of Crops	42
12. Crop Rotation	50
13. Cropping System	53
14. Shifting Cultivation	57
15. Multistoreyed Cropping	58
16. Diversified Farming	61
17. Precision Farming	62
18. Irrigation	64
19. Devices used for Measuring Irrigation Water	68
20. Soil Moisture Constant	71
21. Water Requirement of Crops	74
22. Efficient Water Management	76
23. Methods of Irrigation	78
24. Irrigation Efficiency	81
25. Evaporation	84
26. Weeds	85
27. Classification of Weeds	88
28. Weed Control	90
29. Application of Herbicides	95
30. Calculation of Herbicide Requirement	98

(vi) | Fundamentals of Agronomy

31. Important Formulas of Agronomy	100
32. Problems Related to Agronomical Characters	101
33. Assessment of Agronomic Interactions	111
34. Physiological Parameters	119
35. Dryland Farming	120
36. Drought	121
37. Water Harvesting	127
38. Mulching	129
39. Antitranspirants	132
40. Strip Cropping	134
41. Tillage	136
42. Watershed Management	140
43. Low Production Technologies	141
44. Agronomic Practices of Field Crops	142
45. Cultivation Practices of Different Crops	155
46. Agroforestry	161