

**ENSILAGE; A SYSTEM FOR THE
PRESERVATION IN PITS OF
FORAGE PLANTS AND GRASSES,
INDEPENDENT OF WEATHER**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649337026

Ensilage; a system for the preservation in pits of forage plants and grasses, independent of weather by T. Christy

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

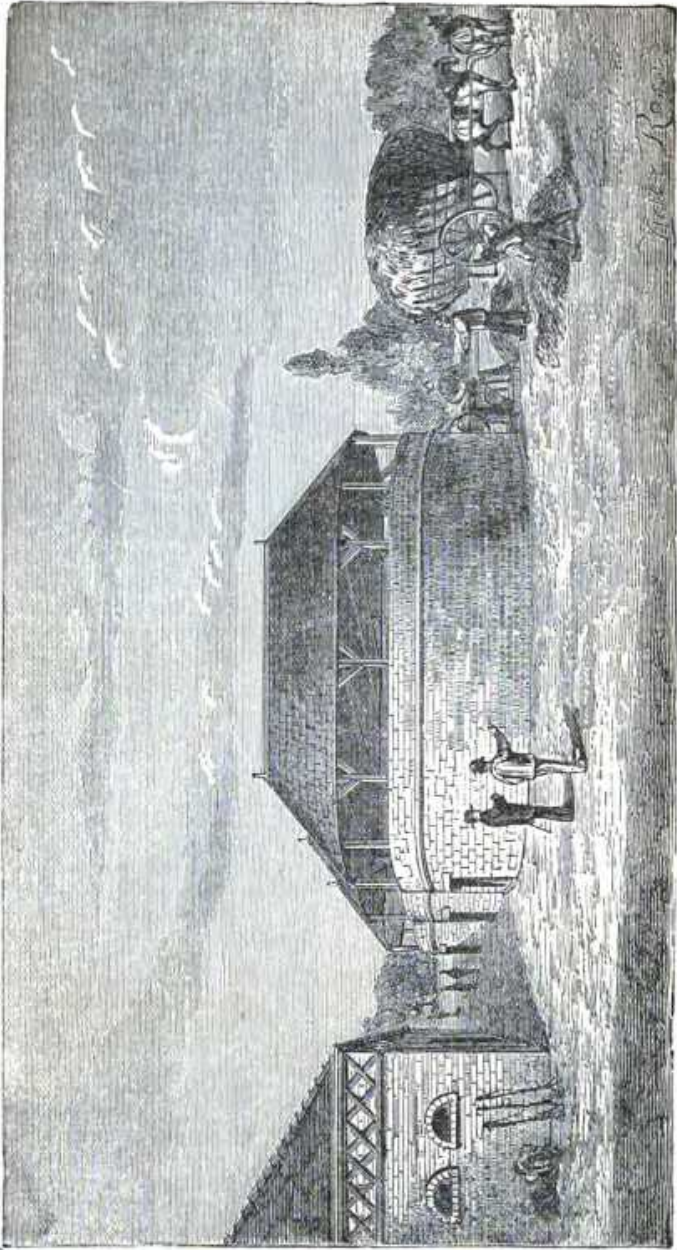
This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

T. CHRISTY

**ENSILAGE; A SYSTEM FOR THE
PRESERVATION IN PITS OF
FORAGE PLANTS AND GRASSES,
INDEPENDENT OF WEATHER**

W. & A. G. B. & C. LONDON



THE SILOS OF MONS. GOFFART AT BURTON.

ENSILAGE.

A SYSTEM FOR THE PRESERVATION IN PITS
OF FORAGE PLANTS AND GRASSES,
INDEPENDENT OF WEATHER.

homed BY
T. CHRISTY, F.L.S.

A COLLECTION OF FACTS AND STATISTICS
ON THE CHEAPEST MODE OF PROVIDING WINTER FOOD
FOR DAIRY CATTLE, SHEEP, HORSES, &c.

LONDON:
CHRISTY & CO., 155, FENCHURCH STREET, E.C.

1883.

Price One Shilling.]

[*Ent. at Stationers' Hall.*

LONDON:

A. SOUTHEY, PRINTER, 146, FENCHURCH STREET, E.C.

SB
195
C56

GITE
The Davis Co.
P. P. 1934

P R E F A C E.

The establishment of a yearly Congress in the United States to represent Farmers who have adopted the principle of feeding their stock with fodder preserved in the green state by the process of Ensilage, warrants me in believing that the time has arrived when a book describing the system, and giving drawings of the silos, will be appreciated.

The Analytical Chemists in the United States who took part in the 1888 Congress, joined in a resolution passed, urging the universal adoption of the system of Ensilage by the farmers of the United States, and stamped the system with their approval.

The facts I have collected show that if cows are fed on ensilaged fodder in winter, they will give such a rich quality of milk that the butter made from it is as firm and yellow as in summer. A Farmer or a Chemist may dry the green stem, and the sap in hay, but they are unable to reproduce the forage with the sap in it in a succulent and green state. To show how the conservation of this sap or juice in the forage can be effected by easy and economical methods, is the object and aim of this compilation.

I am indebted to the following Gentlemen for their assistance:—

C. J. TAYLOR, Green Hill Farm, near Burlington, N.J.
Dr. L. W. WHEELER, Oconomowoc, Wisconsin.
HY. LAPHAM, Minnewoc Farm, Oconomowoc, Wisconsin.
F. MORRIS, Oakland Manor, Howard Co., Mass.
O. B. POTTER, 26, Lafayette Place, New York.
CHAS. S. WHEELWRIGHT, Providence, R.I.
E. WRIGHT, Atlantic City, N.J.
W. B. EAGER, Middletown, Orange County, New York.
Dr. ORMISTON, 17, West 52nd Street, New York.
H. R. BARKER, Lowell, Mass.
GEO. MORTON, Essex, Vermont, U.S.A.
C. W. WOLCOTT, Beedsville, Mass.
W. R. SYBONG, Goldin's Bridge, Michigan.

Also to the Writers of the Books, &c., consulted:—

Silos and Ensilage, by Dr. GEO. THURBER, of the *American Agriculturist*.
The Book of Ensilage, by JOHN M. BAILEY, New York.
Experiments with Ensilage at the Agricultural College, Lansing, Mich., 1861 & 1862.
Agricultural Review and Journal (of New York and Chicago), Nov., 1882.
Department of Agriculture Special Report, No. 48, *Silos and Ensilage*.
On Ensilage of Green Forage Crops in Silos, by H. R. STEVENS.
Report of Proceedings of the Ensilage Congress, New York, Jan. 25 & 26, 1882.
The Weekly Sun, U.S., Feb. 1st, 1882.
The Times; The Field; and Live Stock Journal.

THOS. CHRISTY, F.L.S.

MALVERN HOUSE, SYDENHAM, S.E.,
February, 1883.

3-1-35-1000 ✓

CONTENTS.

	PAGE
<i>Frontispiece</i>	2
<i>Preface</i>	5
The History of Ensilage, 7; Fibres, 8-9; Vicomte Chezelles' Silos, 10-13; Pros and Cons of Ensilage, 14-17; Cost of Silos, 18-19; Plans, and American Experience, 20-22; Analyses of Ensilage, 22, 23; Silos or Pits, and American Experience, 24-41; Mr. Easdale's Silo and Ensilage, 42, 43; Lord Walsingham's Grass Ensilage and Analysis, with Cost of his Three Silos, 44-48	7-48
Report of 1882 American Congress on Ensilage	49-56
Caucasian Prickly Comfrey	57-63
Menthol Planting	64
<i>Advertisements</i>	65-74

ENSILAGE.

The principle of Ensilage has been known from the earliest times, when grain and fodder used to be preserved by burying it; but Ensilage itself has not received the attention of scientific men until the present century.

Griewold describes the system in 1842, when referring to the pitting of fine grass in East Prussia. Mr. Goffart says, in his work on Ensilage, that he commenced to study the question of the preservation of green crops or forage in 1852. He had for a guide, his countryman the Duke of Liancourt, who no doubt had seen this system in practice during his travels in Hungary or in Italy—perhaps he may have been struck by seeing the Swiss peasant collecting the leaves and tufts of scanty herbage, and treading them into a pit for a store of food to be used when the ground should be covered with snow. For my present purpose, it is not worth while referring to those who have known and practised the system of Ensilage in the past, except to show how backward farmers have been in adopting a safe plan for storing fodder.

Thanks to the rapid dissemination of information through the Press, such useful results have been chronicled that the process of Ensilaging fodder cannot be overlooked. To Mons. Barral, Perpetual Secretary of the French Chamber of Agriculture, is due the honour of at once examining into the experiments of Mons. Goffart, and publishing them in his *Journal de l'Agriculture*, and it was his opinion, so strongly expressed, that caused me to look into the subject and adopt his views.

The publication of a few of the facts, with drawings, in my first edition of *Forage Plants* in 1877, brought the Ensilage system

before the farmers in the United States, and many of them then wrote to me for further details. From that time I have gone on collecting information and proofs of its value. With silos in full operation in this country, no one need now say, "Where can we see a silo?"

My last work, No. VI. *New Commercial Plants*, led me into the study of fibres, and I was kindly assisted by Mons. Vétillart, of Paris, who is the greatest authority on the subject, having written, and illustrated with the aid of his microscope, a standard work on fibres. While working at this subject I became convinced that although farmers had proved by experiments that ensilaged fodder was a great gain over dry hay and roots, there was an immense field opened out for the chemist in investigating the changes which take place in the sap in plants in their different stages of growth and development of flower and fruit. Mons. Vétillart admitted that if flax and hemp were allowed to remain in a growing state on the land until the ripe seed could be collected, then the stems would not rett, and the fibre would be useless for purposes of weaving. This is the reason why the flax and hemp is pulled before it ripens, and is placed, before it dries, in ditches and ponds, so that the filaments may be separated from the cellular matter. Mr. C. D. Ekman, F.L.S., finds that it is best to treat these fibre-yielding plants when ripe, and after the farmer has secured his crop of seed. On the other hand, Mons. Vétillart says the present machinery for spinning cannot treat the fibre if taken from the ripe plant. The paper makers can get 40 per cent. of very good fibre from hemp, and 25 per cent. from flax. These few facts show how little is known about the treatment of such important staples, yet no one in England has turned his attention to finding out when grasses ought to be cut. Mr. Geo. Fry, F.L.S., has worked chemically as an amateur for seventeen years at the question of the formation of the sap and gummy matters that hold the fibres together, and his research leads him to affirm that there is a splendid field open to the chemist in this direction. He thoroughly believes in the advantages of Ensilage, and has constructed and partly filled a silo on his farm at Chobham, Surrey, with maize, which when opened on the 6th of January, 1883, was found in splendid order, the cattle eating it greedily. Although this silo was only a trench in porous soil, it had withstood the downpour of rain, and no water had entered the silo.