

**FROM THE AMERICAN JOURNAL OF
SCIENCE. VOL. XLII, OCTOBER, 1891.
USEFUL PLANTS OF THE FUTURE.
SOME OF THE POSSIBILITIES OF
ECONOMIC BOTANY; PP. 271-303**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649296309

From the American Journal of science. Vol. XLII, October, 1891. Useful Plants of the Future.
Some of the Possibilities of economic botany; pp. 271-303 by George Lincoln Goodale

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GEORGE LINCOLN GOODALE

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*From Prof. Angell
May 28, 1892*

[FROM THE AMERICAN JOURNAL OF SCIENCE. VOL. XLII, OCTOBER, 1891.]

USEFUL PLANTS OF THE FUTURE.

SOME OF THE

POSSIBILITIES OF ECONOMIC BOTANY.

By GEORGE LINCOLN GOODALE, Cambridge, Mass.

1891.



USEFUL PLANTS OF THE FUTURE.

With Compliments of the Author.

Dr. Goodale ventures to ask his correspondents to send him any facts of interest regarding the local or exceptional uses of any plants, especially of those wild plants which have not yet found a place in the economic lists.

Before the American Association for the Advancement of Science, at the Washington meeting.

By GEORGE LINCOLN GOODALE, M.D., LL.D.,

Fisher Professor of Natural History in Harvard University, Cambridge, Mass.

NEW HAVEN:

TUTTLE, MOREHOUSE & TAYLOR, PRINTERS.

1891.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This includes not only sales and purchases but also expenses and income. Proper record-keeping is essential for determining the correct amount of tax liability.

2. The second part of the document addresses the issue of deductions. Taxpayers are allowed to deduct certain expenses from their taxable income. These deductions can significantly reduce the amount of tax owed. However, it is important to ensure that the deductions claimed are eligible and properly substantiated.

3. The third part of the document discusses the timing of tax payments. Taxpayers are generally required to make payments throughout the year, rather than waiting until the end of the year. This helps to avoid a large lump-sum payment at the end of the year and ensures that the taxpayer remains in compliance with the law.

4. The fourth part of the document discusses the consequences of non-compliance. Failure to file a return or pay taxes on time can result in penalties and interest charges. In severe cases, it can lead to legal action and the seizure of assets.

5. The fifth part of the document discusses the importance of seeking professional advice. Tax laws are complex and constantly changing. A qualified tax professional can provide valuable guidance and help taxpayers navigate the complexities of the tax system.

6. The sixth part of the document discusses the importance of staying up-to-date on tax law changes. The Internal Revenue Service (IRS) frequently issues new regulations and interpretations. Taxpayers should stay informed about these changes to ensure they are following the most current rules.

7. The seventh part of the document discusses the importance of keeping records for a sufficient period of time. The IRS may request to see records at any time, so it is important to retain them for at least the statute of limitations period.

8. The eighth part of the document discusses the importance of understanding the tax implications of major life events. Events such as marriage, divorce, and the birth of a child can have significant tax consequences. Taxpayers should consult with a professional to understand these implications.

9. The ninth part of the document discusses the importance of understanding the tax implications of investments. Different types of investments have different tax treatments. Taxpayers should understand these treatments to make informed investment decisions.

10. The tenth part of the document discusses the importance of understanding the tax implications of retirement savings. Retirement accounts offer tax advantages, but there are rules governing how they can be used. Taxpayers should understand these rules to maximize the benefits of their retirement savings.

11. The eleventh part of the document discusses the importance of understanding the tax implications of estate planning. Estate planning involves the distribution of assets after death. Taxpayers should understand the tax implications of their estate plan to ensure that their assets are distributed in the most tax-efficient manner.

12. The twelfth part of the document discusses the importance of understanding the tax implications of international transactions. Taxpayers who have income or assets in other countries may be subject to different tax rules. Taxpayers should understand these rules to ensure they are in compliance with the law.

13. The thirteenth part of the document discusses the importance of understanding the tax implications of charitable contributions. Charitable contributions are deductible from taxable income. Taxpayers should understand the rules governing these deductions to maximize their charitable giving.

14. The fourteenth part of the document discusses the importance of understanding the tax implications of capital gains. Capital gains are the profits from the sale of assets. Taxpayers should understand the rules governing these gains to minimize their tax liability.

15. The fifteenth part of the document discusses the importance of understanding the tax implications of Social Security benefits. Social Security benefits may be taxable, depending on the taxpayer's income. Taxpayers should understand the rules governing these benefits to minimize their tax liability.

16. The sixteenth part of the document discusses the importance of understanding the tax implications of the Affordable Care Act (ACA). The ACA has introduced significant changes to the tax system, including the introduction of the Affordable Care Act (ACA) tax. Taxpayers should understand the rules governing this tax to ensure they are in compliance with the law.

17. The seventeenth part of the document discusses the importance of understanding the tax implications of the Tax Cuts and Jobs Act (TCJA). The TCJA has introduced significant changes to the tax system, including the reduction of the corporate tax rate and the elimination of the estate tax exemption. Taxpayers should understand the rules governing these changes to ensure they are in compliance with the law.

18. The eighteenth part of the document discusses the importance of understanding the tax implications of the American Rescue Plan Act (ARPA). The ARPA has introduced significant changes to the tax system, including the extension of the child tax credit and the introduction of the new child tax credit. Taxpayers should understand the rules governing these changes to ensure they are in compliance with the law.

19. The nineteenth part of the document discusses the importance of understanding the tax implications of the Inflation Reduction Act (IRA). The IRA has introduced significant changes to the tax system, including the extension of the research and development credit and the introduction of the new energy-related tax credits. Taxpayers should understand the rules governing these changes to ensure they are in compliance with the law.

20. The twentieth part of the document discusses the importance of understanding the tax implications of the American Infrastructure Act (AIA). The AIA has introduced significant changes to the tax system, including the extension of the research and development credit and the introduction of the new energy-related tax credits. Taxpayers should understand the rules governing these changes to ensure they are in compliance with the law.

[FROM THE AMERICAN JOURNAL OF SCIENCE, VOL. XLII, OCTOBER, 1891.]

ART. XXVII.—*Some of the Possibilities of Economic Botany;*
by GEORGE LINCOLN GOODALE.

[Presidential address delivered before the American Association for the Advancement of Science, at Washington, August, 1891.]

OUR Association demands of its president, on his retirement from office, some account of matters connected with the department of science in which he is engaged.

But you will naturally expect that, before I enter upon the discharge of this duty, I should present a report respecting the mission with which you entrusted me last year. You desired me to attend the annual meeting of the Australasian Association for the Advancement of Science, and express your good wishes for its success. Compliance with your request did not necessitate any material change in plans formed long ago to visit the South Seas; some of the dates and the sequence of places had to be modified; otherwise the early plans were fully carried out.

I can assure you that it seemed very strange to reverse the seasons, and find mid-summer in January. But in the meeting with our brethren of the southern hemisphere, nothing else was reversed. The official welcome to your representative was as cordial, and the response by the members was as kindly as that which the people in the northern hemisphere would give to any fellow-worker coming from beyond the sea.

The meeting to which I was commissioned was held in January last in the Cathedral city of Christchurch, New Zealand, the seat of Canterbury College.

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Considering the distance between the other colonies and New Zealand, the meeting was well attended. From Hobart, Tasmania, to the southern harbor, known as the Bluff, in New Zealand, the sea voyage is only a little short of one thousand miles of rough water. From Sydney in New South Wales to Auckland, New Zealand, it is over twelve hundred miles. If, therefore, one journeys from Adelaide in South Australia, to Christchurch, New Zealand, where the meeting was held he travels by land and by sea over two thousand miles. From Brisbane in Queensland, it is somewhat farther. Although certain concessions are made to the members of the Association, the fares by rail and by steamship are high, so that a journey from any one of the seats of learning in Australia proper to New Zealand is formidable on account of its cost. It is remarkable that so large a number of members should have met together under such circumstances, and it speaks well for the great strength and vigor of the Association.

The Australasian Association is modelled rather more closely after the British Association than is our own. The president delivers his address upon his inauguration. There are no general business meetings, but all the details are attended to by an executive committee answering to our council; none except the members and associates are invited to attend even the sectional meetings and there are some other differences between the three associations. The secretaries stated to me their conviction that their organization and methods are better adapted to their surroundings than ours would be, and all of their arguments seemed cogent. Although the Association has been in existence but three years, it has accomplished great good. It has brought together workers in different fields for conference and mutual benefit; it has diminished misunderstandings, and has strengthened friendships. In short it is doing the same kind of good work that we believe ours is now doing, and in much the same way.

Your message was delivered at the general evening session immediately before the induction of the new officers. The retiring president, Baron von Mueller, and the incoming president Sir James Hector, in welcoming your representative, expressed their pleasure that you should have seen fit to send personal greetings.

In replying to their welcome, I endeavored to convey your felicitations upon the pronounced success of the Association, and your best wishes for a prosperous future. In your name, I extended a cordial invitation to the members to gratify us by their presence at some of our annual meetings, and I have good reason to believe that this invitation will be accepted. I know it will be most thoroughly and hospitably honored by us.

On the morning of the session to which I refer, we received in the daily papers, a cable telegram relative to the Bering Sea difficulties (which were then in an acute stage). In your stead, I ventured to say, "In these days of disquieting dispatches, when there are rumors of trouble between Great Britain and the United States, it is pleasant to think that 'blood is thicker than water.'" This utterance was taken to mean that we are all English-speaking kinsmen, and even before I had finished, the old proverb was received with prolonged applause.

The next meeting of the Australasian Association is to be held in Hobart, the capital of Tasmania, under the presidency of the governor, Sir Robert Hamilton. The energetic secretaries Professor Liversidge, Professor Hutton and Mr. Morton, promise a cordial welcome to any of our members visiting the Association. Should you accept the invitation, you will enjoy every feature of the remarkable island, Tasmania, where the meeting is to be held. You will be delighted by Tasmanian scenery, vegetation and climate, but that which will give you the greatest enjoyment in this as in other English South Sea colonies, is the fact that you are among English-speaking friends half way around the world. You will find that their efficient Association is devoted to the advancement of science and the promotion of sound learning. In short you will be made to feel at home.

The subject which I have selected for the valedictory address deals with certain industrial, commercial and economic questions: nevertheless it lies wholly within the domain of botany. I invite you to examine with me some of the possibilities of economic botany.

Of course, when treating a topic which is so largely speculative as this, it is difficult and unwise to draw a hard and fast line between possibilities and probabilities. Nowadays, possibilities are so often realized rapidly that they become accomplished facts before we are aware.

In asking what are the possibilities that other plants than those we now use may be utilized we enter upon a many-sided inquiry.* Speculation is rife as to the coming man. May we not ask what plants the coming man will use?

There is an enormous disproportion between the total number of species of plants known to botanical science and the number of those which are employed by man.

The species of flowering plants already described and named are about one hundred and seven thousand. Acquisitions from unexplored or imperfectly explored regions may increase the

* For references, notes, etc., see p. 300.