

## 《中国农业发展战略研究》专题快报

2019年第7期（总第23期）

中国工程科技知识中心农业分中心

中国农业科学院农业信息研究所

2019年4月5日

### 【动态资讯】

#### 1. The future of agriculture is computerized

**【EurekAlert!】** CAMBRIDGE, MA -- What goes into making plants taste good? For scientists in MIT's Media Lab, it takes a combination of botany, machine-learning algorithms, and some good old-fashioned chemistry. Using all of the above, researchers in the Media Lab's Open Agriculture Initiative report that they have created basil plants that are likely more delicious than any you have ever tasted. No genetic modification is involved: The researchers used computer algorithms to determine the optimal growing conditions to maximize the concentration of flavorful molecules known as volatile compounds. But that is just the beginning for the new field of "cyber agriculture," says Caleb Harper, a principal research scientist in MIT's Media Lab and director of the OpenAg group. His group is now working on enhancing the human disease-fighting properties of herbs, and they also hope to help growers adapt to changing climates by studying how crops grow under different conditions.

链接:

[https://www.eurekalert.org/pub\\_releases/2019-04/miot-tfo040119.php](https://www.eurekalert.org/pub_releases/2019-04/miot-tfo040119.php)

#### 2. Higher yields will push India wheat output to record high

**【AgroNews】** Higher yields in Madhya Pradesh and Gujarat could lift wheat output to a record high, said GP Singh, Director of the Karnal-based Indian Institute of Wheat and Barley Research (IIWBR). This is even as the prolonged winter has delayed the harvest in Punjab and Haryana by a week. Singh said the wheat harvest is currently on in Madhya Pradesh, where the yields are 5-10 per cent higher. "It will be a record crop and we stick to our

earlier estimate of 105 million tonnes (mt),” he said. However, if there’s any heavy rainfall in the days ahead, it could impact the harvest and quality. The Agriculture Ministry, in its second advance estimates, has pegged the wheat output at 99.12 mt. In Punjab and Haryana, the harvest is expected to commence a week after Baisakhi. “The crop condition is good and the prevailing night temperatures are hovering in the range of 16-17 degrees Celsius, while the maximum temperature is around 33 degrees. Once the minimum temperature crosses 20 degrees, the crop will mature fast and will be ready to harvest,” Singh said.

链接:

<http://news.agropages.com/News/NewsDetail---29958.htm>

### **3. Manure application changes with winter crop can cut nitrogen loss, boost profits**

**【EurekaAlert!】** Dairy farmers in the Northeast can improve water quality and boost the profitability of their operations by changing the timing and method of applying manure to their fields in the fall, along with planting rye as a cover crop between corn crops -- or by double-cropping rye and corn, according to Penn State researchers. In a two-year study at Penn State's Russell E. Larson Agricultural Research Center, researchers compared the effects on nitrogen conservation of three field-management options that could be implemented by farmers, to determine whether new strategies would yield environmental and crop-production benefits. The results indicate that dairy farmers can take advantage of win-win opportunities, according to Heather Karsten, associate professor of crop production ecology. By incorporating a few changes into their operations, they can produce more feed for their cattle and reduce the amount of nitrogen lost from their fields.

链接:

[https://www.eurekaalert.org/pub\\_releases/2019-04/ps-lbp040219.php](https://www.eurekaalert.org/pub_releases/2019-04/ps-lbp040219.php)

### **4. Bayer launches herbicide that promises to revolutionize Brazilian sugarcane market**

**【AgroNews】** The current situation in Brazil of resistance of weeds to herbicides in the various production systems is a reality, and the infestation of these weeds is one of the main problems of modern agriculture. In sugarcane cultivation, for example, the longer their coexistence with the crop, the greater the impact caused, particularly if the coexistence occurs in the first 90 days of the sugar cane cycle. In the literature, losses of up to 85% on ryegrass, and up to 100% on sugarcane, are reported. Against this backdrop, Bayer is

launching the herbicide Provenge Total, a union of the company's main products for sugarcane - Alion (Indaziflam) and Provenge (Isoxaflutole) - for the next harvest. It could control narrow-leaf and broad-leaf weeds, according to Carlos D'Arce, Bayer's Strategic Marketing Manager for Herbicides and Growth Regulators. The use of this technology, together with the correct management and superior agricultural practices, becomes a strategic tool for the rural producer to produce more and better harvests. The new herbicide meets the needs of farmers, who face weeds that are difficult to control. Because controlling plants that compete for water, space and light with the main crop, it can have a larger production per hectare, with optimized cost and higher quality of the final product.

链接:

<http://news.agropages.com/News/NewsDetail---29950.htm>

##### **5. Price & supply trend: China's market may fluctuate and even reverse due to Xiangshui explosion**

**【AgroNews】** The 21st March explosion at the Tianjiayi Chemical Plant in Yancheng Xiangshui Industrial Park caused heavy casualties. After the incident, nation-wide actions were immediately taken to put in place safety checks on hazardous chemical production, warehousing and transportation enterprises to identify hidden dangers. The ongoing work safety-related measures and actions are resulting in more difficulties for production within industrial parks, where pesticide production is greatly affected. Suspension in production and restrictions in upstream industry sectors are leading to short supplies, and causing delays in the recovery of production in. With the cumulative impact being generated, the gap between supply and demand has again widened. The market, which is expected to remain stable, might be affected, or may even goes into reverse. Close attention is required to be paid to pesticide supplies, as affected by the Xiangshui explosion.

链接:

<http://news.agropages.com/News/NewsDetail---29876.htm>

##### **6. 减肥节水提地力 农业生产将更“绿”**

**【中国农业新闻网】**从2019年河南省土肥水工作会上获悉,今年河南省将持续推动质量兴农和绿色发展,保持化肥使用量负增长,稳步提升耕地质量,加快推进农田节水技术推广,主要农作物化肥利用率达到39%,力争土壤有机质含量提高3至5个百分点,示范区亩均减少灌溉用水20%以上。据介绍,河南省化肥用量已连续3年实现负增长。今年,

将加快高效减肥技术推广，促进化肥用量继续减少，提高化肥利用率，主要农作物化肥利用率达到39%。此外，我省将开展耕地质量保护与提升行动，到2020年河南省耕地质量平均提高0.5个等级；增加果菜茶有机肥替代化肥试点县，在苹果、设施蔬菜、茶叶优势产区的8个县（市）开展示范县创建工作，提高试点县畜禽粪污综合利用率，提升土壤有机质含量和农产品品质。

链接:

[http://www.farmer.com.cn/jjpd/nz/nzdt/201903/t20190326\\_1438971.htm](http://www.farmer.com.cn/jjpd/nz/nzdt/201903/t20190326_1438971.htm)

## 7. 河北出台三年净土计划

【中国农业新闻网】近日，河北省土壤污染防治工作领导小组办公室出台了《河北省净土保卫战三年行动计划》，提出到2020年，全省土壤环境质量稳中向好，重点区域土壤污染加重趋势得到控制，农用地土壤环境得到有效保护，建设用地土壤环境安全得到基本保障，全省土壤环境监管能力得到显著提升，土壤污染治理与修复试点示范取得明显成效，建立以“政府主导、市场驱动、企业担责、公众参与”的全省土壤污染防治体系。河北省生态环境厅党组书记、厅长高建民介绍说，该计划是河北省持续推进土壤污染防治工作的顶层设计，将持续开展污染耕地治理与修复工作，计划用3年的时间完成全省治理和修复受污染耕地面积达到30万亩以上，受污染耕地实现安全利用面积达到121万亩，以最强执行力还原一方净土。

链接:

[http://www.farmer.com.cn/jjpd/nz/nzdt/201903/t20190322\\_1438590.htm](http://www.farmer.com.cn/jjpd/nz/nzdt/201903/t20190322_1438590.htm)

## 8. 坚持绿色引领聚力精准施策 持续推进种植业绿色高质量发展

【中华人民共和国农业农村部】绿色是农业的底色，也是农业发展最大的优势和最宝贵的资源。加快推进农业绿色发展，是促进农业高质量发展的应有之义。《国家质量兴农战略规划（2018-2022年）》提出，加快农业绿色发展，调整完善农业生产布局，节约高效利用水土资源，科学使用农业投入品，全面加强产地环境保护与治理。推进这一工作，种植业作为农业基础的基础，任务艰巨，意义重大，必须着力推进种植业生产方式、资源利用方式、经营方式的转变，实现数量增长与质量效益并重、物质要素投入与科技创新并进、生产发展与生态环境协调，加快促进种植业高质量绿色发展。

链接:

[http://www.moa.gov.cn/xw/zwdt/201903/t20190322\\_6177127.htm](http://www.moa.gov.cn/xw/zwdt/201903/t20190322_6177127.htm)

## 9. 以质量兴牧促进畜牧业转型升级

【中华人民共和国农业农村部】习近平总书记指出，实施乡村振兴战略，必须深化农业供给侧结构性改革，走质量兴农之路。近日出台的《国家质量兴农战略规划（2018-2022年）》，对未来五年质量兴农工作进行了具体部署。当前，我国畜牧业正处于转型升级和加快实现现代化的关键阶段，《规划》必将对推进畜牧业高质量发展产生重大而深远的影响。党的十八大以来，各级畜牧兽医部门坚持以习近平新时代中国特色社会主义思想为指导，坚决贯彻落实党中央、国务院决策部署，紧扣高质量发展主题，持续深化畜牧业供给侧结构性改革。通过开展畜禽养殖标准化示范创建，推动畜禽养殖标准化、现代化；积极支持畜牧业品牌创建工作，培育出一批大而优的全国知名品牌和小而精的地方特色品牌；狠抓生态环保和质量安全，推进畜禽粪污资源化利用，组织开展兽用抗菌药减量使用示范创建，畜牧业绿色高效发展迈出新步伐。当前，畜牧业综合生产能力总体稳固，肉类产量继续保持8500万吨以上，畜禽规模养殖比重达到60%，畜禽粪污综合利用率达到70%，畜产品及饲料、兽药等投入品抽检合格率常年保持在较高水平。

链接:

[http://www.moa.gov.cn/xw/zwdt/201903/t20190322\\_6177128.htm](http://www.moa.gov.cn/xw/zwdt/201903/t20190322_6177128.htm)

## 10. 诸城：三种模式让畜禽粪污变肥料

【中国农业新闻网】日前，山东省畜禽粪污资源化利用暨机制模式创新试点推广会在诸城市召开，畜禽粪污资源处理化的“诸城模式”受到与会人员一致关注。诸城市是传统的畜牧业大县，目前已形成生猪、肉鸡、毛皮动物为主的三大主导产业。高速发展的养殖业富了老百姓的口袋，增了政府的税收，可畜禽养殖产生的粪污却长期困扰着企业和政府。近年来，诸城市以“整县推进农业废弃物资源化利用”试点为抓手，通过“政府扶持、企业运作经营，设备租赁、产品偿还经营，粪污托管、集中处理经营”三种运作处理模式，进一步完善了当地畜禽粪污资源化利用机制，探索出了一条以农牧结合、种养对接为重点的生态循环之路。模式一政府扶持、企业运作经营。模式二设备租赁、产品偿还经营。模式三粪污托管、集中处理经营。近年来，诸城先后制定了《诸城市现代生态高效农业发展规划》，编制了《（2018—2022）畜牧业发展规划》，规划发展现代化绿色畜牧产业园区。《规划》中提出，将优化粪污资源化利用布局，在全市规划建设8个区域性畜禽粪污集中收集处理中心，26处中型粪污处理点，对畜禽粪污实行统一收集运输和能源化利用。此外，还将实行有机肥推广使用补助，在3~5年内，对农民购置有机肥每年给予每吨200元的补助，减少化肥使用量，为发展该市绿色高效农业打下坚实基础。

链接:

[http://www.farmer.com.cn/jjpd/nz/fl/201903/t20190318\\_1437930.htm](http://www.farmer.com.cn/jjpd/nz/fl/201903/t20190318_1437930.htm)



## 【文献速递】

### 1. 环境规制、农业绿色生产率与粮食安全

作者：展进涛；徐钰娇

文献源：中国人口·资源与环境,2019

摘要：绿色发展将成为中国未来粮食安全保障的重点内容,衡量农业绿色生产率有利于判断当前的发展位点,且合理的农业环境规制是促进绿色生产效率提升和解决粮食供需矛盾的有效途径。本文引入碳排放交易和排污费征收标准,在将考虑了环境成本的农业绿色GDP作为产出运用随机前沿函数模型(SFA)核算中国2000—2015年省级农业绿色全要素生产率的基础上,采用GMM方法检验了农业绿色全要素生产率与粮食安全保障程度之间是否具有因果关系,并构建联立方程模型具体分析了两者的影响机制,以及不同环境规制因素对两者的驱动机制。结果表明:①2000—2015年间全国平均农业绿色全要素生产率年均增长4.10%,呈现明显的时序波动性以及地区之间的梯度性特征;②农业绿色全要素生产率和粮食安全之间存在双向因果关系;③农业绿色生产率的提高会降低粮食安全的保障程度,而过度重视粮食安全保障反过来会抑制农业绿色生产率的增长;④命令控制型环境政策规制对农业绿色全要素生产率和粮食安全均产生正向影响,激励性碳排放交易规制对农业绿色全要素生产率和粮食安全分别产生了正向作用和负向作用,自愿性环保投资规制仅对农业绿色全要素生产率产生了显著正向影响。因此,精心设计环境监管工具,改善环境规制政策的适度性和适用性,建立强化能够充分调动农民实施清洁生产的激励机制和市场化排污交易机制,大力整合不同类型环境法规从而构建均衡的“环境规制组合”体系,是提高农业绿色生产率增长和保障粮食安全可持续发展的关键。

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylabGAWxXDAAZOK8Vlebs325.pdf>

### 2. 中国区域农业绿色全要素生产率分解及收敛性分析

作者：李文华；郭丰；陈永强

文献源：重庆工商大学学报(社会科学版),2019

摘要：选取1999—2015年全国31个省域农业投入、产出面板数据,运用Global Malmquist-Luenberger生产率指数方法测算中国农业绿色全要素生产率增长与分解情况,并针对收敛性问题进行检验。结果表明:(1)中国农业绿色全要素生产率增长源于技术进步,规模效率降低了绿色全要素生产率的提高,纯技术效率无明显影响;(2)未考虑农业碳排放会高估全要素生产率水平,导致评价偏误;(3)考虑农业碳排放情况下,全要素生产率水平呈现东、中、西、东北部依次递减趋势;(4)全国及各区域无明显 $\sigma$ 收敛特征,全国层面及东北地区存在绝对 $\beta$ 收敛现象,全国及东、中、西、东北地区均存在显著条件 $\beta$ 收敛,

表明各省域朝着自身稳定状态发展,而省域间"追赶效应"不明显。据此认为农业要走绿色技术创新及区域协调发展道路。

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylbNeADeFBAAY9QwmWPDs156.pdf>

### 3. Russian agriculture: Growth and institutional challenges

作者: Vasily Uzun; Natalya Shagaida; Zvi Lerman

文献源: Land Use Policy,2019

摘要: Russian agriculture has shown stable growth since 1999. The food trade balance steadily improves and the share of imported food in retail markets is decreasing due to the government's import substitution policies. Russia has re-emerged on the world arena as a food exporter and now ranks among the leading exporters of wheat and vegetable oil. Agricultural production growth has become export oriented. To continue its growth, Russia's agriculture should emphasize returning unused land to cultivation and adopt new technologies to increase the comparatively low crop and livestock yields. The skewed land distribution and agricultural support system, both strongly biased toward large farms and agroholdings, constrain the development of small farms and prevent their participation in food value chains, negatively impacting on rural development.

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylcEWAfQ0OABPzqD6DwAU978.pdf>

### 4. 发达国家农业绿色发展的政策演进及启示

作者: 冯丹萌; 王欧

文献源: 农村工作通讯,2019

摘要: 绿色发展是人类面对当今全球资源、能源和环境挑战所作出的发展方式和发展道路上的重大探索,随着经济的发展、社会的进步,绿色发展理念越来越受到人们的重视。中国作为全球经济体发展中的一个大国,在推进农业绿色发展完善相关农业政策制定方面亟须吸取其他发达国家的经验和教训,提升政策执行的效果;同时,我国农业农村经济发展与世界各国的联系愈发紧密,发达国家农业政策的调整对我国农业发展产生越来越显著的影响。

链接:

[http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylaO-AM\\_7LABVQ6ZE6bk691.pdf](http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylaO-AM_7LABVQ6ZE6bk691.pdf)

## 5. 福建省土地资源承载状况评估研究

作者: 严惠明

文献源: 国土与自然资源研究,2019

摘要: 以福建省84个县(市、区)为研究单元,结合区域承载本底条件,采用GIS空间分析法、承载压力指数法以及木桶原理法,分别开展全省建设用地、耕地开发利用两个单要素承载状况评价和土地资源承载状况综合评价研究。结果表明:全省土地资源承载状况总体良好,承载压力适中的县(市、区)个数占77.38%,县域面积占全省土地总面积的94.17%。从建设用地和耕地开发利用承载状况来看,建设用地开发承载压力较大的县(市、区)个数占10.71%,主要分布于闽东南沿海的福州、厦门两大都市区的中心城区以及部分经济实力较强县域;耕地开发利用承载压力较大的县(市、区)个数占22.62%,主要分布于经济实力较强县域以及部分海岛县域。

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylaVWAKdLKAAX684AXMYU833.pdf>

## 6. GIS支持下的土地资源环境承载力评价——以荣成市为例

作者: 邵艳坡; 刘森; 郭志勇

文献源: 北京测绘,2019

摘要: 随着人类生产活动的日益加剧,土地资源环境已逐渐成为制约社会经济发展的主要因素。基于荣成市土地资源环境要素,利用层次分析法构建了区域土地资源环境承载力评价体系。对土地资源进行基础性评价,在GIS技术支持下计算各项指标分值,并得出承载状态压力指数;在基础性评价结果的基础上,对水资源、生态条件与环境质量进行修正性评价。结果显示,荣成市土地资源环境基础性评价为可载,基于水资源系统的综合承载状态为临界,基于生态条件与环境质量系统的综合承载状态为可载。

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylaKSAdPskAAM70vLTpnw787.pdf>

## 7. Growing climatic sensitivity of U.S. agriculture linked to technological change and regional specialization

作者: Ariel Ortiz-Bobea; Erwin Knippenberg; Robert G. Chambers

文献源: Science Advances,2019

摘要: A pressing question for climate change adaptation is whether ongoing transformations of the agricultural sector affect its ability to cope with climatic variations. We examine this question in the United States, where major increases in productivity have



fueled most of agricultural production growth over the past half-century. To quantify the evolving climate sensitivity of the sector and identify its sources, we combine state-level measures of agricultural productivity with detailed climate data for 1960-2004. We find that agriculture is growing more sensitive to climate in Midwestern states for two distinct but compounding reasons: a rising climatic sensitivity of non-irrigated cereal and oilseed crops and a growing specialization in crop production. In contrast, other regions specialize in less climate-sensitive production such as irrigated specialty crops or livestock. Results suggest that reducing vulnerability to climate change should consider the role of policies in inducing regional specialization.

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylbcyAEm9CAA5z-fGxQ9k498.pdf>

## 8. 资源环境承载力评价方法回顾与展望

作者: 牛方曲; 封志明; 刘慧

文献源: 资源科学,2019

摘要: 中国经济的快速发展导致资源大量消耗和环境污染加剧,资源环境承载力研究成为热点。本文对国内外资源环境承载力相关研究进行了系统的回顾,以人口总量为出口界定了资源环境承载力概念,在此基础上对资源环境承载力评价方法研究进行了展望,总结分析了资源环境承载力评价方法存在的不足。研究认为:目前对资源环境承载力认知并未统一,评价方法也存在差异;研究侧重单要素评价,而对资源环境要素与社会经济要素的相互作用机理、区域资源环境承载力综合评价研究较为薄弱;在开放的系统下如何剥离要素流动导致的资源环境压力转移,率定社会经济系统对当地资源环境压力,透析区域资源环境承载力并提供可操作的政策建议有待进一步深化。为此,将区域社会经济同人口、资源、生态环境予以集成,开展综合评价的理论方法研究具有重要意义。

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylbnSAQHbtABibws9OpHo616.pdf>

## 9. Trends in Global Agricultural Land Use: Implications for Environmental Health and Food Security

作者: Navin Ramankutty; Zia Mehrabi; Katharina Waha, et al.

文献源: Annual Review of Plant Biology,2019

摘要: The eighteenth-century Malthusian prediction of population growth outstripping food production has not yet come to bear. Unprecedented agricultural land expansions since

1700, and technological innovations that began in the 1930s, have enabled more calorie production per capita than was ever available before in history. This remarkable success, however, has come at a great cost. Agriculture is a major cause of global environmental degradation. Malnutrition persists among large sections of the population, and a new epidemic of obesity is on the rise. We review both the successes and failures of the global food system, addressing ongoing debates on pathways to environmental health and food security. To deal with these challenges, a new coordinated research program blending modern breeding with agro-ecological methods is needed. We call on plant biologists to lead this effort and help steer humanity toward a safe operating space for agriculture.

链接:

[http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylbwSAC6miACA\\_VMbioy4323.pdf](http://agri.ckcest.cn/file1/M00/06/69/Csgk0FylbwSAC6miACA_VMbioy4323.pdf)

#### **10. Rural restructuring at village level under rapid urbanization in metropolitan suburbs of China and its implications for innovations in land use policy**

作者: Shuangshuang Tu; Hualou Long; Yingnan Zhang, et al.

文献源: Habitat International,2019

摘要: Currently, the functions of rural territories in metropolitan suburbs have been gradually evolved under rapid urbanization since the turn of the new millennium. Meanwhile, the socio-economic morphology and spatial pattern in the rural areas are undergoing dramatic restructuring. This paper takes the Huangshandian village in the suburb of Beijing as a case study area to carry out an empirical study on the process of rural restructuring by adopting the method of participatory rural assessment (PRA) and GIS technology. The results show that since 2000, the Huangshandian village has experienced different industrial transformations from traditional agriculture to the industries of primary processing and eco-tourism. The function of traditional agricultural production is declining gradually, and the industrial production, ecological culture and other multi-functional value of the rural territory have successively appeared. With the evolution and restructuring of socio-economic morphology, there are significant changes in the quantity, structure, and pattern of rural living, production and ecological space accordingly. The mutually reinforced and restrictive relationships among economic restructuring, spatial restructuring, and social restructuring have jointly driven the systematic development of the “natural-ecological-economic-social” systems and the comprehensive promotion of the “production-living-ecology-culture” functions. Based on the analysis of the process of rural

restructuring of the Huangshandian village in the aspects of economic restructuring, spatial restructuring, and social restructuring, this paper puts forward some suggestions on land use policy and institutional innovations aiming at optimally allocating the land resources and promoting the rural restructuring in metropolitan suburbs, including accelerating the institutional framework design of rural land transfer, exploring the tourism land management system adapting to the new pattern of rural economy and pushing forward the re-use mechanism of abandoned industrial and mining land.

链接:

<http://agri.ckcest.cn/file1/M00/06/69/Csgk0Fylb-KASNHABX334DT9mQ998.pdf>

### 【统计数据】

#### **1. Farming statistics – final land use, livestock populations and agricultural workforce as at 1 June 2018, England**

发布源: GOV.UK

发布时间: 2018-10-25

摘要: This publication gives final estimates of land use, livestock populations and the agricultural workforce for England from the June Survey of Agriculture and Horticulture run by the Department for Environment, Food and Rural Affairs in June 2018. The utilised agricultural area (UAA) in England increased by 1.5% between 2017 and 2018 and now stands at almost 9.2 million hectares. The total croppable area accounts for just over half (54%) of UAA and has increased by 2.1% to almost 5.0 million hectares in 2018. Permanent grassland accounts for an additional 41% of UAA and has remained virtually unchanged at 3.8 million hectares in 2018. The area of owned land in England increased by 1.7% to just over 6.2 million hectares in 2018. Land rented in for a year or more increased by 1.9% to over 3.0 million hectares.

链接:

<http://agri.ckcest.cn/file1/M00/06/63/Csgk0FycM-2AAdrWAAW4XZHg8cE850.pdf>

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