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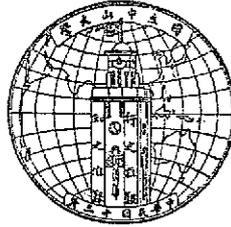
# 國立中山大學農學院

農林研究委員會

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## 廣東野生稻不實現象之觀察



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# 野生稻不實現象之觀察

林亮東

丁 穎

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## I 緒 言

栽培稻之部分的不實現象，為普通所常見者，因其與育種及作物經濟上之關係殊大，故先後就其不實現象及原因加以研究者頗多(1)-(3)，據所知者：(一)受粉不可能，



雌蕊或雄蕊雄化；(二)花粉或黏液發育不完全，即精囊不能裂開，或花粉濕潤不成粉狀；(三)雌蕊發育不完全；(四)花粉與柱頭發育不完全(顯化)；(五)花藥發育不完全(Sponginess)，(六)被病(Sclerotial Disease)蟲(Stem Borer)等害，至不能

(南)

結實；(七)因氣候不調，如被狂雨烈日暴風等害，致不能結實；(八)肥分過多，致令營養器官發育過盛，或肥分過少，致令生育機能萎縮。大抵(六)項以後為外因，頗有以人力左右之之可能。(五)項以前則為內因，與植物遺傳學細胞學或生理有關。此外並有因系統之距離遠近有不同，親和能力有強弱，彼此交配，遂致發生種種結實度不同之現象(9)。然內因亦時受外因之複雜影響，故一般對於不實性之遺傳研究，不無感覺困難也。

就本場所搜集之廣東野生稻觀之，其不實程度遠比之栽培稻為甚，即一般概在50%以上也。栽培稻本由野生稻演進而成者，夫由不實度高之野稻演進為結實度高之栽培稻時，其轉變經過之情形若何？如可測知，則對於栽培稻之不實性原因之研究上，當與以助力不少。惟野稻不實問題，似未為世人所注意。據著者所知，惟 Roy 氏(10)及 Bhalerao 氏(11)就印度野稻稍加觀察耳。本場因實行野稻與栽培稻交配育種之關係(12)，對於野稻不實性頗有令著者留意者；且於野稻之雜種分蘗中，發覺有完全不稔者。由完全不稔之莖蘗分離栽植後，亦間有結實者。然將結實種子播植後乃得雄蕊雌化株。如此種種，引起吾人興味者頗多。爰於民國二十年至廿二年就各野稻花先後作初步之考察，並觀察高度結實之栽培稻花以比較之，冀得從野稻之不實現象以追求其不實性乃至轉變為結實性之原因；且亦藉以窺知廣東野稻與栽培稻之系統關係也。

考察方法：(1)穎花觀察，係採取各種野生稻與栽培稻之成熟莖花用解剖鏡觀察，而測定其各部分之長短大小以比較彼此異同。(2)花粉觀察，係採取各種野生稻及栽培稻之成熟花粉，用顯微鏡觀察，而測定其長幅大小，及計算其長幅較差以區別其形狀；並觀察其內容物之情形而比較彼此異同。(3)稻花開閉時間並受粉結實之觀察，係先移植供試驗用之稻株於網室內，次於開花時候，携帶記錄表，米突尺，放大鏡，時計及標簽等就地觀察各花之開閉情態，及所需時間而記錄之以資比較。(4)授精雌蕊與受粉關係之觀察，係於觀察開花情態之途中，特別注意觀察蕊筒開裂情態及數目與授粉作用之適否關係，而比較之。(5)花粉發芽試驗，所取供試驗之花粉，概以正當開裂撒粉者為限。發芽液分蒸餾水及 10% 與 20% 之甘蔗糖液三種。而以較物玻

瑞片盛置於玻璃盒內，以保持相當溫度，後於適宜時間取出檢視之，其溫度則以室溫為限。

## II 野生稻與栽培稻之穎花比較觀察

從形態學上觀之，野生稻與栽培稻之區別甚微；惟野稻植物體之各部均有色，科型特徵，葉脈特多，穗形亦散，不實粒多，殼灰黑色而有長芒，及脫落特早；是與栽培稻殊，而別具一種野生特性者也(10)(11)。

就穎花言：穎之長短，即在栽培稻亦因種而殊；惟比較穎花之各部，則在野稻亦有特殊者。據著者就栽培稻與野生稻及由是雜種分離者共十一種觀之；如附錄第一表，穎之長度，以野稻5-15-2為最長，凡9mm；石牌野稻與中山一號次之，為8.28-8.3mm；白殼糯，清遠鶴田野稻，野稻5-15-4及竹粘等又次之，為8-8.06mm；犀牛尾野稻，東莞白及晚造禁風雪等再次之，為7-7.5mm；而野稻三號最短，僅6.5mm。花柄上端在穎內所佔之高度，以犀牛尾野稻為最高，佔全穎長十分之8.6；清遠鶴田野稻，石牌野稻及野稻5-15-4等次之，佔全穎長十分之7-7.3；野稻5-15-2，野稻三號及晚造禁風雪等又次之，佔全穎長十分之6.4-6.7；中山一號與竹粘再次之，佔全穎長十分之6；而東莞白與白殼糯最矮，僅佔全穎長十分之5.1-5.6。花柄以犀牛尾野稻為最長，凡5.4mm；石牌野稻與清遠鶴田野稻次之，為5.0-5.7mm；野稻5-15-2，野稻5-15-4及野稻三號等又次之，為3.4-4.3mm；中山一號，晚造禁風雪及白殼糯等再次之，為2.45-3.05mm；而竹粘與東莞白最矮，僅為2.2-2.31mm。花柄幅度，以野稻三號為最寬，凡0.55mm；石牌野稻，清遠鶴田野稻，野稻5-15-2及犀牛尾野稻等次之，為0.45-0.48mm；中山一號，野稻5-15-4及晚造禁風雪等又次之，為0.40-0.43mm；東莞白與白殼糯再次之，為0.37-0.38mm；而竹粘最狹，僅為0.35mm。花絲以竹粘為最長，凡2.77mm；中山一號與白殼糯次之，為2.34-2.58mm；東莞白，野稻5-15-4，晚造禁風雪及野稻5-15-2又次之，為2-2.28mm；犀牛尾野稻及石牌野稻再次之，為1.79-1.80mm；而清遠鶴田野稻與野稻三號最矮，僅為1-1.42mm。花絲幅度以野稻5-15-2及中山一號為最

寬，均 0.099 mm；清遠鶴田及犀牛尾野稻次之，為 0.09-0.092 mm；白穀糯，野稻三號，野稻 5-15-4 及東莞白等又次之，為 0.087-0.089 mm；石牌野稻再次之，為 0.085 mm；而晚造禁風雪與竹粘最狹，均為 0.084 mm。花柱以野稻 5-15-4 為最長，凡 0.8mm；野稻 5-15-2 次之，為 0.67mm；竹粘，石牌野稻，犀牛尾野稻，晚造禁風雪及白穀糯等又次之，為 0.5-0.57mm；中山一號及清遠鶴田野稻再次之，為 0.43-0.45mm；而東莞白與野稻三號最短，僅為 0.385-0.390mm。柱頭以石牌野稻及犀牛尾野稻為最長，凡 1.8-1.95 mm；清遠鶴田野稻及野稻 5-15-4 次之，為 1.47-1.52mm；野稻 5-15-2，晚造禁風雪，中山一號及野稻三號等又次之，為 1.2-1.27 mm；竹粘及白穀糯再次之，為 1.14-1.19 mm；而東莞白最短，僅為 1.12 mm。子房以野稻 5-15-2 及白穀糯為最長，凡 1.13-1.20mm；竹粘及野稻 5-15-4 次之，為 1.08-1.09mm；清遠鶴田野稻，中山一號及晚造禁風雪等又次之，為 1-1.04mm；東莞白，石牌野稻及野稻三號等再次之，為 0.88-0.95mm；而犀牛尾野稻最短，僅為 0.74mm。子房幅度以晚造禁風雪為最寬，凡 0.46 mm；清遠鶴田野稻，白穀糯及竹粘等次之，均為 0.44mm；中山一號，野稻 5-15-2 及東莞白等又次之，為 0.42-0.43 mm；石牌野稻，野稻 5-15-4 及犀牛尾野稻再次之，為 0.4-0.41mm；而野稻三號最狹，僅為 0.385mm。

如上述野生稻與栽培稻之雌蕊比較，似無甚足資區別者；蓋兩者之修短寬狹，均無一定界限也。惟野生稻之柱頭與雄蕊則較比栽培稻遙覺發育良好；而至最後之受精結實則野稻遠不如栽培稻，是即結實度之高低，似與其雌雄蕊之修短大小無甚關係也。

然以不實度極高之野稻而其授粉結實器官乃比之結實度極高之栽培稻特別發育良好，是固有足令人注意者。茲據第一表摘錄各種稻之花葯高度，長度及幅度，並柱頭長度如下，以便比觀。

各種稻花葯上端在顯內對全顯長所估之高度 (十分比例數)

|        |      |       |      |
|--------|------|-------|------|
| 犀牛尾野稻  | 估8.6 | 晚造禁風雪 | 估6.4 |
| 清遠鶴田野稻 | 估7.3 | 中山一號  | 估6.0 |
| 石牌野稻   | 估7.2 | 竹粘    | 估6.0 |

|          |      |     |      |
|----------|------|-----|------|
| 野稻5-15-4 | 估7.0 | 東莞白 | 估5.6 |
| 野稻5-15-2 | 估6.7 | 白穀糯 | 估5.1 |
| 野稻三號     | 估6.5 |     |      |

各種稻花藥之長度 (mm)

|          |      |       |      |
|----------|------|-------|------|
| 犀牛尾野稻    | 5.4  | 中山一號  | 3.05 |
| 石牌野稻     | 5.07 | 晚造禁風雪 | 2.61 |
| 清遠鶴田野稻   | 5.0  | 白穀糯   | 2.45 |
| 野稻5-5-2  | 4.3  | 竹粘    | 2.31 |
| 野稻5-15-4 | 3.8  | 東莞白   | 2.2  |
| 野稻三號     | 3.4  |       |      |

各種稻花藥之幅度 (mm)

|          |      |          |      |
|----------|------|----------|------|
| 野稻三號     | 0.55 | 野稻5-15-4 | 0.41 |
| 石牌野稻     | 0.48 | 晚造禁風雪    | 0.40 |
| 清遠鶴田野稻   | 0.47 | 東莞白      | 0.38 |
| 野稻5-15-2 | 0.47 | 白穀糯      | 0.37 |
| 犀牛尾野稻    | 0.45 | 竹粘       | 0.35 |
| 中山一號     | 0.43 |          |      |

各種稻柱頭之長度 (mm)

|          |      |      |      |
|----------|------|------|------|
| 石牌野稻     | 1.95 | 中山一號 | 1.21 |
| 犀牛尾野稻    | 1.8  | 野稻三號 | 1.2  |
| 清遠鶴田野稻   | 1.52 | 竹粘   | 1.19 |
| 野稻5-15-4 | 1.47 | 白穀糯  | 1.14 |
| 野稻5-15-2 | 1.27 | 東莞白  | 1.12 |
| 晚造禁風雪    | 1.25 |      |      |

據上列四表觀之，野稻花藥上端在穎內所佔之位置較高，而花藥之長幅與柱頭亦

極大，野稻雜交分離種次之，栽培稻則反小，彼此恰若見有蔚然之區別也。

### III 花粉形態及其內容物之比較觀察

花藥之內為花粉，據著者就野生稻與栽培稻共二十七種之觀察結果言之：優彼此差異頗多；且為與野稻之不實性有關者，試於開花時手振栽培稻之花而以玻璃器盛取其花粉觀之，則點點散佈如乾粉狀；花藥即變成白色。同法若就野稻花振取觀之，則器上粉粒絕少，甚或空無所有，而花藥仍為黃色。若以肉眼或於放大鏡下檢查花藥之內容，則覺野稻之花粉彼此黏着如泥狀，與 Roy 氏 (10) 就印度野生稻所觀察者同。夫花粉粒既失其飛散分佈之作用，則無論其發芽授精之能力如何，亦必於結實上有絕大影響，可無疑義也。

若就粉粒外形及其內容物而言：如第二，第三表粉粒之長短 (36.2-46.9 $\mu$ ) 大小 (33.2-44.9 $\mu$ ) 原因品種而殊，若無可擬議者。惟如第四表就其長與幅較差觀之，則野稻與栽培稻及其雜種者之差異殊為顯著也。如表中假定長幅較差在 1.5 $\mu$  以下者為近於圓形之 A 形，在 2.5 $\mu$  以上者為近於橢圓之 C 形，在二者之間者為中間形之 B 形，斯則二十七種花粉中，六種野稻原種者概屬於 C 形；十一種栽培種中，屬於 A 形者六，屬於 B 形者五；十種野稻與栽培稻雜種之分離種中，屬於 A 形者二，屬於 B 形者八；是即栽培稻之花粉粒長幅較差極小，野稻極大，而野稻雜種分離者則多位於二者之間，恰若栽培稻與野生稻可由其花粉粒之較差大小或粉粒圓長而區別之者。若將 A、B、C 各組長幅直徑平均之，則 A 組為 42.5 $\times$ 41.0 $\mu$ ，B 組為 42.5 $\times$ 40.5 $\mu$ ，C 組為 41.6 $\times$ 37.8 $\mu$ 。

再就花粉粒之內容物觀之：凡栽培稻或其雜種之花粉圓整者，其內容物極極充實而顆粒密緻；反之如野稻或其雜種之不圓整花粉，則內容不充實（或全無物）而顆粒粗糙，內容物之粗糙或與花粉粒之圓整與否有關，與其授精能力亦當有關，亦即與稻種之結實度當有莫大關係也。

然此中有宜注意者：如野稻三號係全不結實者，而其花粉粒之長幅較差與栽培種近；惟其內容物則粗疎逾常。是即花粉粒之圓整與否，不必盡與其內容物之充實密緻

與否有關也。又如中山一號為野稻雜種分離育成者，禁風雲為普通栽培種而生長最易者，其結實均佳，花粉內容物亦充實如常；惟其長幅較差則在 2.2 u 內外，與野稻種之較差約在 3.0u，以上者最為相近。查禁風雲生長容易，且耐深水，酸土及寒冷，為栽培稻種習性之最近於野生稻者，與其花粉粒之偏於橢圓者合觀之，或其系統上距野生稻較近，亦未可知；且花粉粒形之長短，或亦於遺傳學上成爲一問題也。

#### IV 授精機能與受粉關係之觀察

如上述，野稻花粉粒發育既不完全，則柱頭自身縱無問題，而其受粉以至孕實作用自生極大影響。惟野稻穗中未嘗不有結實者，即花粉粒中亦未嘗不有發育完全者，假令花藥中少數發育完全之花粉，悉能落於柱頭之上，則野稻結實仍當較多。爰就授精機能之蒴囊開裂與柱頭受粉之關係，於民國二十年加以觀察，後於民國廿一年再次行之；並注意及於支持蒴囊之花絲之伸長整否，帶第五及第六兩表。

試將第五第六兩表綜合爲第七表，而就栽培稻竹粘與其他野生種比觀之：在每種所觀察之四十花中（但野稻三號祇觀察得二十花），其支持蒴囊之花絲，以竹粘種伸長最為整齊；蒴囊之開裂於未出穎外以前者，亦以竹粘種佔最大多數；且其一花之各蒴，多數能於開穎時全部開裂；袋之上下兩端均有裂口，裂口亦比之其他野生稻種爲大；而下口裂至側向，甚或裂及全緣；是即竹粘之授精機能，比之其他野稻種最為發達而且捷速，故受粉結實自當完全。茲爲明瞭起見，將第七表中之要項改算爲百分數如下（以觀察花數爲100），以便比觀。

|            | 竹粘    | 犀牛尾野稻 | 野稻三號 | 野稻5-15-2 | 野稻5-15-4 |
|------------|-------|-------|------|----------|----------|
| 花絲伸長整齊者    | 75%   | 47.5% | 5%   | 7.5%     | 65%      |
| 花藥在外伸前裂者   | 90%   | 37.5% | 0    | 17.5%    | 57.5%    |
| 花藥全部開裂者    | 72.5% | 60%   | 0    | 6%       | 87.5%    |
| 花藥全部上下端均裂者 | 70%   | 0     | 0    | 0        | 2.5%     |
| 花藥裂口大者     | 92.5% | 0     | 0    | 0        | 0        |

## 野生稻不實現象之觀察

|        |       |       |     |     |       |
|--------|-------|-------|-----|-----|-------|
| 柱頭受粉者  | 92.5% | 57.5% | 10% | 30% | 95.5% |
| 柱頭不外伸者 | 62.5% | 0     | 15% | 5%  | 2.5%  |

附注：藥登裂口之大小以竹粘作比較標準。犀牛尾野稻裂口之中等大者 92.5%；野稻三號裂口小者 40%；野稻5-15-2 裂口小者 72%；野稻5-15-4 裂口中等大者 92.5%。請參閱第七表。

如上表，栽培稻之觀察雖僅竹粘一種，未可視為根據；而野稻種四種中，凡如上述之授精機能較為發達者，則其柱頭於開花時受粉極多，即其穗之結實數亦較多，據民國二十年各科稻之結實度平均檢查結果：竹粘為 92.5% 野稻5-15-4 為 65.6% 野稻5-15-2 為 30.5%，犀牛尾野稻為 10%，野稻三號則全不結實（但所觀察各花之結實度未及另行記載）；是則花絲整度與花藥發育情形，及花藥開裂情形與柱頭受粉結實之關係若何，似宜注意者。

然此中不無問題：即竹粘結實雖佳，而支持花藥之花絲仍欠整齊者尚佔四分之一。野稻5-15-2之花絲整齊者雖比之犀牛尾野稻為少，而其結實度反較高；是則稻花雄蕊之強弱似與花絲整否無大關係；雖其中稍有參差，於授精作用上亦未必定生影響也。其次犀牛尾野稻及野稻5-15-4於開花時，其柱頭受粉比率遠較其結實比率為高。而野稻三號之柱頭受粉者雖有10%，然結實則全無。可知野稻雄蕊雖具有授精機能，其粉粒則未必有授精機能。故授精作用，當以粉粒之發育如何最為重要也。至授精作用與環境之溫，濕，風，等亦有關係，茲雖未及詳密檢查，而所觀察時日概於普通栽培稻不覺有特殊影響者。

此外雌蕊之受粉結實能力如何，亦有宜注意者。茲據野稻雌蕊形態上之觀察結果，覺與普通稻無甚殊異。惟其柱頭處於開花後伸出外方（參閱第六節及附錄第九表），似係因其自花之花粉發育不完全，而別尋他花授粉者。且事實上野稻與栽培稻自然雜種極易，即人工授粉於野稻柱頭亦易成功。反之將野稻花粉授於栽培稻之柱頭，則結實極難，是於民十七年曾一次實驗之者。由此觀之，野稻之不實性與其雌蕊當無甚大關係；但此後仍當詳密試驗之。

## V 花粉發芽試驗

花粉發育情形既與結實度有絕大關係，勢不能不直接將花粉發芽能力鑑定之。茲先後舉行花粉發芽能力試驗凡六次，其結果如下：

第一次試驗 比較試驗材料為栽培稻竹粘及犀牛尾野稻開花中之花粉，於採集後即行試驗。試液為蒸溜水及10%與20%之甘蔗糖液。置床時期為民國二十年十月十九日午後三時二十分至越日午後三時二十分。試驗期間之平均氣溫為23.94°C。其結果如下表，竹粘花粉以置在10%甘蔗糖液之發芽能率37.7%者為最高，犀牛尾野稻者則全不發芽，但採粉時，因竹粘花粉幾已全部撒佈於柱頭上，因連柱頭折取置床試驗之。若犀牛尾野稻則僅採花粉，不連柱頭。

| 採粉品種  | 發芽試液  | 觀察個數 | 發芽個數 | 發芽%   |
|-------|-------|------|------|-------|
| 竹粘    | 蒸溜水   | 82   | 0    | 0     |
| 竹粘    | 10%糖液 | 69   | 26   | 37.68 |
| 竹粘    | 20%糖液 | 76   | 14   | 18.42 |
| 犀牛尾野稻 | 蒸溜水   | 100  | 0    | 0     |
| 犀牛尾野稻 | 10%糖液 | 100  | 0    | 0     |
| 犀牛尾野稻 | 20%糖液 | 100  | 0    | 0     |

第二次試驗 上次試驗以10%之甘蔗糖液發芽較佳，本次因單用之。惟上次犀牛尾野稻之花粉不連柱頭置床，而結果全不發芽，本次因此別為連柱頭及不連柱頭之二項以便鑑定之，並加試全不結實之野稻三號花粉，試驗時期為二十年十月廿二日下午至越日下午。同期間之平均氣溫為21.64°C。其結果如下表，凡不連柱頭者均不發芽，其連柱頭者在竹粘種亦僅發芽14%，犀牛尾野稻則為8%，全不結實之野稻三號仍有6%。此中如竹粘等之發芽能率過少，容與試驗處理上有關；但為便於比較彼此發芽多少計，則本試驗當以連柱頭置床為妥也。

|           | 觀察個數 | 發芽個數 | 發芽%  |
|-----------|------|------|------|
| 竹粘連柱頭     | 118  | 17   | 14.4 |
| 竹粘不連柱頭    | 104  | 0    | 0    |
| 犀牛尾野稻連柱頭  | 359  | 30   | 8.36 |
| 犀牛尾野稻不連柱頭 | 347  | 0    | 0    |
| 野稻三號連柱頭   | 33   | 2    | 6    |
| 野稻三號不連柱頭  | 73   | 0    | 0    |

附註：野稻三號連柱頭者，其花粉不發芽而膨脹破裂之粒數達80%以上。不連柱頭者，其破裂粒數達85%以上。

第三次試驗 本次試驗採粉材料，一為犀牛尾野稻，二為野稻三號，三為野稻5-1 5-4三者之花粉均連同柱頭置床。發芽試液同為10%甘蔗糖液。試期為二十年十月廿六日午後至越日午後。試期中之平均氣溫為19.8°C。其結果如下表，野稻5-15-4之花粉發芽率高逾48%；犀牛尾野稻達14%；野稻三號則比前減為4.7%。

|          | 觀察個數 | 發芽個數 | 發芽%   |
|----------|------|------|-------|
| 犀牛尾野稻    | 64   | 9    | 14    |
| 野稻三號     | 84   | 4    | 4.66  |
| 野稻5-15-4 | 29   | 14   | 48.28 |

第四次試驗 本次試液及連同柱頭置床之方法與前次同。供試品種為竹粘及野稻5-15-4。試期為十月廿八日午后至越日午後，試期中之平均氣溫為19.33°C。其結果如下表，竹粘花粉之發芽率比前更高達82.6%；野稻5-15-4亦比前高達75.7%；是或處理適當時，竹粘及野稻5-15-4之花粉發芽能率概高。

|          | 觀察個數 | 發芽個數 | 發芽%  |
|----------|------|------|------|
| 竹粘       | 68   | 57   | 82.6 |
| 野稻5-15-4 | 103  | 78   | 75.7 |

第五次試驗 本次再依第四次方法將犀牛尾野稻及野稻三號施行試驗，並加試

野稻5-15-2一種。試期為十一月廿九日午后至越日午后。試期中平均氣溫為18.61°C。其結果如下表，犀牛尾野稻及野稻三號之花粉發芽率仍低，而野稻5-15-2則高達82%。

|          | 觀察個數 | 發芽個數 | 發芽%  |
|----------|------|------|------|
| 犀牛尾野稻    | 137  | 9    | 6.5  |
| 野稻三號     | 96   | 3    | 3.12 |
| 野稻5-15-2 | 117  | 96   | 82   |

第六次試驗 本次係為參攷將開穎前之花粉發芽能力計，就材料便宜上取野稻5-15-1之未開穎及已開穎開穎之花粉粒而比較試驗之。其試液同前次。試期為民國二十年十二月二日午后三時至越日午前十一時。試期中之平均氣溫為21.24°C。其結果如下表，在未開穎及未開穎之花粉雖亦有發芽能力，然比之既開者則成數殊低，且芽長亦短。

|        | 觀察個數 | 發芽個數 | 花粉管長   | 不發芽個數 | 破壞個數 | 發芽%   |
|--------|------|------|--------|-------|------|-------|
| 未開穎加柱頭 | 1095 | 25   | 不及10u. | 291   | 749  | 2.28  |
| 全上不加柱頭 | 1382 | 3    | 突出少許   | 59    | 1320 | 0.22  |
| 既開穎加柱頭 | 700  | 119  | 長達50u. | 536   | 45   | 17.00 |
| 全上不加柱頭 | 393  | 31   | 不及16u. | 328   | 34   | 7.89  |

綜合六次花粉發芽試驗之結果觀之：於氣溫19°C內外之10%甘蔗糖液中，連同柱頭置床時，栽培種竹粘之花粉最高發芽率為82.6%；由野稻自然雜種分離之野稻5-15-2為82%；野稻5-15-4為75.7%；犀牛尾野稻原生種為14%；由野稻自然雜種分離而全不結實之野稻三號其花粉之發芽能力亦有6%，但發芽時之平均氣溫為21.64°C。就中竹粘之花粉發芽率高，柱頭受粉率亦高(參觀前節)故其結實度亦高。犀牛尾野稻之柱頭受粉率雖在57%以上，而花粉之發芽率特低，即所受粉必未均能發芽，故其結實度亦低，凡此均可無特別問題。惟野稻5-15-4之花粉發芽率及柱頭受粉率與竹粘同，然其結實度有時不過66%(參觀第四節)，野稻5-15-2之花粉發芽率凡82%，然其

結實度有時僅得30%。野稻三號之花粉發芽率仍有6%，柱頭受粉率亦有10%，但全不結實。此中原因，固尚有研究之餘地，或者花粉雖發芽而仍難授精，亦未可知。又野稻之花粉凡不發芽者，其膨脹破裂之數均多，此亦宜注意者也。

## VI 稻花之各部開闔時間及其受粉結實情形之觀察

如前述野稻或其雜種者之雌雄蕊發育情形，除花絲伸長不整較多外，其餘柱頭伸展特長花柄特大，而上昇高特，似比之普通栽培稻特為發育。惟藥囊開裂多不完全，花粉發育亦多不完全，花粉發芽率亦低，是以開花時雖見柱頭受粉，而結實仍少。然在野稻雜種分離之系統中，亦有花粉發芽率雖較高，而柱頭受粉反少，因之結實亦少者（如第四第五兩節中所述之野稻5-15-2）。此中疑與稻花各部開闔時刻以至花粉撒佈之先後等有關。茲將關於此項之觀察結果列為第八表，並附帶將日本種及菲律賓種觀察之，以資比較。又觀察時概於天氣無特別障礙之盛花時間行之。

開花最盛時間因天氣及品種而異。就所觀察之各品種言：如第八表(A)至(M)項，最早者為早造種中之白穀稻，約在上午九時前後（約29°C.），菲律賓之Pinutot（約29°C.）亦同。次之為東莞白，約在上午十時前後（約29°C.）；菲律賓之Canabonghong（約30°C.）及日本九大旭一號（約31°C.）亦同。晚造種如竹粘（約25°C.），中山一號（約23°C.），野稻5-15-2（約29°C.），及野稻三號（約30°C.），則盛開概在上午十一時前後。惟犀牛尾野稻（約25°C.），清遠鶴田野稻（約26°C.），野稻5-15-4（約25°C.），及石牌野稻（約26°C.）均遲至午后一時前後。

開花時間係就顯始開至完全閉闔而言。惟各種動作之時間有長短迥殊者。茲將第八表(A)至(M)項之觀察結果綜合為第九表而比較之：由開顯至閉闔停止時間，其平均需時最長者為石牌野稻；次之為東莞白，野稻5-15-2，白粒糯及菲律賓之Canabonghong；較長者為中山一號，清遠鶴田野稻，野稻5-15-4，野稻三號，犀牛尾野稻及菲律賓之Pinutot；最長者為日本九大旭一號及竹粘。茲為易於明瞭及比較上述各稻由開顯至閉闔停止平均所需之時間計，特順次表列於后：

## 由開穎至開穎停止平均所需時間

| 品種           | 分秒   | 品種       | 分秒   |
|--------------|------|----------|------|
| 石牌野稻         | 2.12 | 野稻5-15-4 | 5.00 |
| 東莞白          | 2.30 | 野稻三號     | 6.00 |
| 野稻5-15-2     | 2.36 | 犀牛尾野稻    | 6.24 |
| 白殼糯          | 3.00 | Pinutot  | 6.54 |
| Canabongbong | 3.18 | 九大旭一號    | 7.36 |
| 中山一號         | 4.18 | 竹粘       | 8.00 |
| 清遠鶴田野稻       | 4.42 |          |      |

由開穎至閉穎開始時間，其平均需時最長者為野稻5-15-2；次之為野稻5-15-4，東莞白及石牌野稻；較長者為竹粘，中山一號，九大旭一號，犀牛尾野稻，白殼糯，Pinutot及Canabongbong；最長者為清遠鶴田野稻及野稻三號。茲為易於明瞭起見，特再表列於後：

## 由開穎至閉穎開始平均所需時間

| 品種       | 分秒    | 品種           | 分秒    |
|----------|-------|--------------|-------|
| 野稻5-15-2 | 10.12 | 犀牛尾野稻        | 21.36 |
| 野稻5-15-4 | 14.24 | 白殼糯          | 22.48 |
| 東莞白      | 16.54 | Pinutot      | 23.06 |
| 石牌野稻     | 18.48 | Canabongbong | 23.48 |
| 竹粘       | 20.06 | 清遠鶴田野稻       | 25.00 |
| 中山一號     | 21.06 | 野稻三號         | 26.18 |
| 九大旭一號    | 21.18 |              |       |

由開穎至閉穎停止時間，其平均需時最長者為野稻5-15-4及東莞白；次之為野稻三號及白殼糯；較長者為野稻5-15-2，九大旭一號，竹粘，清遠鶴田野稻，Canabongbong及中山一號；最長者為Pinutot，石牌野稻及犀牛尾野稻。茲再表列如下：

由開穎至閉穎停止平均所需時間

| 品種       | 分秒    | 品種           | 分秒     |
|----------|-------|--------------|--------|
| 野稻5-15-4 | 52.30 | 清遠鶴田野稻       | 82.42  |
| 東莞白      | 53.12 | Canabongbong | 86.12  |
| 野稻三號     | 55.54 | 中山一號         | 93.30  |
| 白穀糕      | 59.36 | Pinutot      | 113.54 |
| 野稻5-15-2 | 64.12 | 石碑野稻         | 114.36 |
| 九大旭一號    | 65.06 | 犀牛尾野稻        | 195.00 |
| 竹粘       | 74.18 |              |        |

如上表,就中以犀牛尾野稻之開闔需時最長,平均達三小時以上;若再觀第九表所列,其需時之極數,有達至二百二十一分以上者。查花之開闔時數,據印度 Hector 氏(14),菲律賓 Rodrigo 氏(15),日本永井氏(16)及美國 Laude 與 Stansel 兩氏(17)等就普通栽培稻觀察,其需時最長者莫如 Laude 與 Stansel 兩氏之一百二十五分,即二小時又五分;然仍不及犀牛尾野稻所需之最短時數一百五十九分(參觀第八表 C 項及第九表)。此種開闔需時較長之習性,容或為野稻所特有。即就上述之十三種稻觀之,凡野稻需時較長,栽培稻較短。其雜種分離者,則約介於二者之間而需時長短頗不一致也。

通常花絲伸長,始於開穎以前,惟始伸至開穎時間,難於觀察。若由開穎至花絲伸長停止時間言之:其平均需時最長者為犀牛尾野稻,次之為竹粘及野稻三號;再次之為白穀糕,野稻5-15-2,中山一號,東莞白,石碑野稻及野稻5-15-4;較長者為 Canabongbong,清遠鶴田野稻及九大旭一號;最長者 Pinutot。茲再表列如下:

由開穎至花絲伸長停止平均所需時間

| 品種    | 分秒   | 品種           | 分秒    |
|-------|------|--------------|-------|
| 犀牛尾野稻 | 3.18 | 石碑野稻         | 9.06  |
| 竹粘    | 4.38 | 野稻5-15-4     | 9.42  |
| 野稻三號  | 4.42 | Canabongbong | 13.58 |

|          |      |         |       |
|----------|------|---------|-------|
| 白穀糯      | 6.12 | 清遠鶴田野稻  | 14.00 |
| 野稻5-15-2 | 6.54 | 九大旭一號   | 19.24 |
| 中山一號     | 7.42 | Pinutot | 23.42 |
| 東莞白      | 8.48 |         |       |

由開穎至花絲開始萎垂時間，其平均需時最長者為石牌野稻及清遠鶴田野稻；次之為野稻5-15-2，野稻5-15-4，白穀糯，東莞白，犀牛尾野稻及中山一號；較長者為野稻三號，竹粘，Canabongbong及九大旭一號；最長者為Pinutot，茲再表列如下：

由開穎至花絲開始萎垂平均所需時間

| 品種       | 分秒   | 品種           | 分秒    |
|----------|------|--------------|-------|
| 石牌野稻     | 1.00 | 中山一號         | 3.42  |
| 清遠鶴田野稻   | 1.00 | 野稻三號         | 9.54  |
| 野稻5-15-2 | 1.12 | 竹粘           | 10.30 |
| 野稻5-15-4 | 2.18 | Canabongbong | 11.06 |
| 白穀糯      | 2.42 | 九大旭一號        | 11.06 |
| 東莞白      | 3.06 | Pinutot      | 13.24 |
| 犀牛尾野稻    | 3.36 |              |       |

由開穎至花絲完全萎垂時間，其平均需時最長者為清遠鶴田野稻及石牌野稻；次之為野稻5-15-2；再次之為野稻5-15-4，白穀糯，東莞白，中山一號，及犀牛尾野稻；較長者為竹粘及野稻三號；最長者 Canabongbong，Pinutot 及九大旭一號。茲再表列如下：

由開穎至花絲完全萎垂平均所需時間

| 品種       | 分秒   | 品種    | 分秒    |
|----------|------|-------|-------|
| 清遠鶴田野稻   | 1.42 | 犀牛尾野稻 | 7.42  |
| 石牌野稻     | 2.00 | 竹粘    | 15.00 |
| 野稻5-15-2 | 2.33 | 野稻三號  | 16.18 |

|          |      |              |       |
|----------|------|--------------|-------|
| 野稻5-15-4 | 5.36 | Canabongbong | 24.42 |
| 白穀糯      | 6.18 | Pinutot      | 31.12 |
| 東莞白      | 6.36 | 九大旭一號        | 41.06 |
| 中山一號     | 6.54 |              |       |

就上列兩表之結果比較觀之：各種稻由花絲開始萎垂以至完全萎垂，其平均所需時間似有一定之順序，即始萎者速，全萎亦速。惟以野稻種與栽培種比觀，則彼此尚無一定的界限也。

由開穎至結莖開裂時間，其平均需時最短者為中山一號及野稻5-15-4；次之為清遠鶴田野稻，東莞白，Canabongbong，野稻5-15-2及竹粘；再次之為石牌野稻及白穀糯；較長者為犀牛尾野稻及野稻三號；最長者為Pinutot。茲再表列如下：

由開穎至開莖平均所需時間

| 品種           | 分秒   | 品種      | 分秒   |
|--------------|------|---------|------|
| 中山一號         | 0.12 | 石牌野稻    | 1.18 |
| 野稻5-15-4     | 0.18 | 白穀糯     | 1.27 |
| 清遠鶴田野稻       | 0.36 | 九大旭一號   | 2.27 |
| 東莞白          | 0.42 | 犀牛尾野稻   | 3.06 |
| Canabongbong | 0.42 | 野稻三號    | 3.15 |
| 野稻5-15-2     | 0.51 | Pinutot | 9.00 |
| 竹粘           | 1.00 |         |      |

如上表中山一號，野稻5-15-4，清遠鶴田野稻，東莞白，Canabongbong，野稻5-15-2，竹粘，石牌野稻及白穀糯等，其結莖開裂每與開穎同時，或反先穎開，其中最遲者亦不過開穎後一至三分間耳。惟如第八表。各種稻中，其開莖時刻雖每有遲於開穎後三分鐘以上者，然仍在花絲開始萎垂之前開裂，如九大旭一號及Pinutot等是。若犀牛尾野稻則其開莖時刻每有在花絲開始萎垂之後一至二分間者。在野稻三號亦見有此種情形；且有全不開莖者，亦有一花中僅開二至五莖者。

開穎後柱頭次第展開，惟柱頭開始伸展時刻難於觀察。若由開穎後至柱頭伸展停止時間言：其平均需時最長者為石牌野稻；次之為野稻5-15-2，清遠鶴田野稻，中山一號及犀牛尾野稻；較長者為野稻5-15-4及九大旭一號；最長者為野稻三號。至竹粘則僅兩花中各一柱頭微向外伸，故未計算。此外如東莞白，白穀糯及菲律賓種，則全不外伸。茲再表列如下：

由開穎至柱頭開展停止平均所需時間

| 品種       | 分秒   | 品種           | 分秒   |
|----------|------|--------------|------|
| 石牌野稻     | 1.00 | 野稻三號         | 9.18 |
| 野稻5-15-2 | 2.18 | 竹粘           | 0.00 |
| 清遠鶴田野稻   | 3.00 | 東莞白          | 0.00 |
| 中山一號     | 4.20 | 白穀糯          | 0.00 |
| 犀牛尾野稻    | 4.30 | Canabongbong | 0.00 |
| 野稻5-15-4 | 8.48 | Pinutot      | 0.00 |
| 九大旭一號    | 9.00 |              |      |

由開穎至柱頭外垂時間，其平均需時最長者為石牌野稻；次之為清遠鶴田野稻，犀牛尾野稻，野稻5-15-2；較長者為野稻5-15-4，野稻三號及中山一號；最長者為九大旭一號。他如竹粘，東莞白，白穀糯及菲律賓種均不外垂。至柱頭外垂後至乾萎時間，因需時過久，故未觀測。據野口博士柱頭受粉能力，每有保持至五日者<sup>(13)</sup>。茲再將各稻由開穎至柱頭外垂平均所需時間表列如下：

由開穎至柱頭外垂平均所需時間

| 品種       | 分秒   | 品種    | 分秒    |
|----------|------|-------|-------|
| 石牌野稻     | 2.03 | 九大旭一號 | 34.04 |
| 清遠鶴田野稻   | 7.00 | 竹粘    | 0.00  |
| 犀牛尾野稻    | 7.30 | 東莞白   | 0.00  |
| 野稻5-15-2 | 7.36 | 白穀糯   | 0.00  |

|          |       |              |      |
|----------|-------|--------------|------|
| 野稻5-15-4 | 16.48 | Canabongbong | 0.00 |
| 野稻三號     | 17.54 | Pinutot      | 0.00 |
| 中山一號     | 27.00 |              |      |

就上表比較之：覺野生稻及其雜種分離種與栽培稻三者，從柱頭外垂需時之長短比較，頗有顯著之區別。野生稻生頭外垂平均需時概短，其雜種分離種次之，栽培稻則均不外垂。

於開花經過觀察中，並同時觀察柱頭受粉及此後結實情形。如第八表各稻柱頭受粉量皆極且多者為中山一號；次之為竹粘，東莞白，白穀糯，九大旭一號及野稻5-15-4；又次之為Canabongbong，石牌野稻，清遠鶴田野稻及Pinutot；最少者為犀牛尾野稻及野稻三號。

結實成績亦以中山一號為最佳；次之為竹粘，東莞白，白穀糯，九大旭一號及野稻5-15-4；又次之為Canabongbong，野稻5-15-2及石牌野稻；較少者為清遠鶴田野稻及Pinutot；最少者為犀牛尾野稻，其柱頭受有極少粉粒者雖佔十分之六，而結實者僅得十分之一。若野稻三號其柱頭受有極少粉量者亦佔十分之六，而結實者則全無。

綜合本節各項言之：除外國種不計外，由始開至全圖之開花時間，其需時最長者為犀牛尾野稻(159-221分)；次之為石牌野稻(103-131分)，中山一號(82-112分)，及清遠鶴田野稻(40-304分)，他如野稻5-15-2，野稻三號，及野稻5-15-4則與其他早晚造之栽培稻相差不遠(約一小時內外)。花開後之花絲伸長停止及萎垂時間，在野生稻與栽培稻概參差不一。然栽培稻之蒴囊開裂每與開穎同時，雖亦有延遲至開穎後一至三分間者，而仍必在花絲開始萎垂之前開裂。若犀牛尾野稻及野稻三號，則不特每有延至開穎後三分鐘以上始行開裂，且每有遲於花絲開始萎垂之後一至二分間者；而野稻三號且有全不開蒴者，卽開亦多有一花中僅開二至五蒴者。柱頭於花開後，在野稻漸徐徐伸展，徐徐下垂，卽開穎後尙夾殘穎外，拾若對於受粉機會上留以有俟者。然除外伸因數較少之中山一號，其雄蕊發育及受粉完全外，其餘犀牛尾野稻及野稻三號有全不受粉，或所受粉量極少者。結果犀牛尾野稻之結實度僅得十分之一；野稻三號則直

等於零。是則野稻柱頭極發育，曝露時間極長，受粉機會極多；惟花藥及花粉發育不完全，花粉散佈亦不完全，以至柱頭或不能受粉，或受粉極少，或所受少量之花粉其發芽授精之能力亦極微，至令其結實度大受影響。然此種花藥或花粉發育不完全之原因，由於遺傳特性關係，抑由於生理關係，則仍有待於研究也。

然據數年來觀察結果：野生稻結實度之高低，仍覺與其遺傳特性上或細胞學上關係最著。就野稻5-15-2及野稻5-15-4兩種言之：於民國二十年後之系統栽培中，在其他植物特性上，雖若與固定種不殊，而各科之結實度仍有高低，相差頗遠，似呈分離現象者。茲逐年將其結實度高者植檢之，則其後代結實亦比之其先代稍佳——參觀第(4)節及第八表(E)(F)兩項；惜其分離現象過於複雜，此時尚難確定其法則如何耳。若中山一號則由高度不實性之野稻自然雜種分離固定為結實完全之新種。意者野生稻之變為栽培稻之重要歷程，須由此點跡之。

## VII 總 括

(1)野稻不實性之引起世人注意者尚少。此間因實行野稻與栽培稻交配育種之關係，覺廣東野稻之不實粒既多(50%以上)，其分離變化亦甚；因於民國二十年至廿二年間先就野稻花及其雜種分離種之不實現象施行觀察，並觀察高度結實之栽培稻花以比較之，冀得從野稻之普遍的不實現象，以追求其不實性乃至變為栽培稻之結實性之原因；且亦藉以窺知廣東野稻與栽培稻之系統關係。

(2)觀察方法，係採取各種稻之成熟籼花，而就形態上觀察其各部分之長短大小，並就各花觀察其開閏時間，授粉機能及受粉結實情形；兼行花粉發芽試驗以考究之。

(3)野稻乃至其雜種分離種之花藥及柱頭比之栽培種均特別長大，即似特別發育者；惟至最後之受粉結實則野稻遠不如栽培稻。

(4)野稻之藥內花粉散佈如泥狀；不易散佈；其粉粒內容物則粗糙不充實，不如栽培稻之密緻；其外形則長幅較差約在 $3.8\mu$ 內外，比之普通栽培稻之長幅較差僅 $1.4\mu$ 內外者為長。而野稻雜種分離種之較差則大概位於二者之間。至三者粉粒之長徑直

徑平均，則各為 $42.5 \times 41.0$ 、 $41.6 \times 37.8$ 及 $42.5 \times 40.5 \mu$ 。

(5)野稻之授粉機能似欠活潑，其花柄能在未出穎外前開裂者甚少；且如栽培稻之穎囊上下兩端均裂開，而裂口亦大者，則全無之。故野稻柱頭受粉極少，而結實尤少。

(6)野稻花粉之發芽能力極少，其最高率不過14%，其雜種分離種之全不結實者(野稻三號)其最高發芽率為6%；其結實較佳者(野稻5-15-2，野稻5-15-4)約80%。若栽培稻竹粘則為83%。計竹粘之結實度比之其花粉之最高發芽率為高，若野稻及其雜種分離者則反低，或全不結實；是容與少數發育良好之花粉不易分佈於柱頭上，或花粉雖發芽而授精能力仍缺乏有關。本項發芽試驗係以10%甘蔗糖液，於氣溫約 $19^{\circ}\text{C}$ 內外時，在玻璃盒內連同柱頭置床試驗之。又野稻之花粉凡不發芽者其膨脹破裂之數均多。

(7)野稻開花需時極長(犀牛尾種平均在三小時以上)，柱頭伸展及外垂時間均速；且於閉穎後仍保留穎外，其受粉機會似比之栽培稻之破連閉穎者(約一小時)為多；惟實際上受粉之花數仍少，即受粉，而所受粉量亦少，其結實則比之受粉花數之比率尤少。是即野稻之不實原因，當與其花粉發育以至穎囊開裂撒佈作用不完全有最大關係也。

(8)要之野稻穎花之各部形態與栽培稻無甚懸殊，且就花柄及柱頭比觀，若較栽培稻更為發達者。惟花粉發育以至撒佈花粉作用不能完全，遂至其受粉機會雖比之栽培稻為多(野稻柱頭外伸)，而結實特少。但此種花粉發育不完全之原因，係由於遺傳學上或細胞學上之關係，抑由於生理學上之關係，則尙有待於研究也。

(9)關於結實度低之野生稻乃至變為結實度高之栽培稻之原因，於此頗有可注意者。即就外觀上似已固定之野稻5-15-2及稻野及5-15-4兩種而言之：於民國二十年後之系統栽培中，其各科之結實度仍有高低，相差頗遠，顯呈繼續分離現象；逐年將其結實度高者植檢之，覺其後代結實比之其先代極佳(參觀第(4)節及第八表(E)(F)兩項)。即中山一號亦由高度不實性之野稻自然雜種分離固定為結實完全之新種，意者

野生稻之蛻變為栽培稻之重要歷程，可由此種觀點而踪跡之。又黎風雪一稱為普通栽培種而生長最易者，其結實均佳，花粉內容物亦充實如常；惟其粉粒之長短較差則在  $2.2\mu$  內外，與野稻種之較差約在  $3.0\mu$  以上者最為相近，與中山一號尤相近。查黎風雪生長容易，且耐寒耐水耐酸，為栽培稻種習性之最近於野生稻者；與其花粉粒之僅於橢圓形者合觀之，或其系統上距野生稻較近，亦未可知；且花粉粒之長短，或亦於遺傳學上成爲一問題，而與野稻蛻變為栽培稻有關者。

## 參 攷 書

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**The Sterile Flower of Wild Rice (*Oryza sativa* L.)****of Kwangtung (Résumé)**

*L. T. Lin and Y. Ting*

(1) The sterility of the wild rice plants has not yet been so brought up in discussion as that of the cultivated ones by research workers. Since the writers who have tried to take plant breeding from the hybrids of the wild rice type with the cultivated type found that there are many sterile spikelets in the panicles of the wild plants of Kwangtung and the separated plants from the wild, they began to observe on the appearance of sterile flowers of the wild and the separated ones from 1931 to 1933; at the same time, they also observed on that of the cultivated type in order to compare with each other. By this observation, the writers expect to make sure why the wild flowers are sterile and how the cultivated ones can be transmuted into the complete fertile from the sterile wild ones. Also it is expected that the kindred relationship of the wild with the cultivated varieties of Kwangtung may be somewhat detected.

(2) The observing methods are: to collect the matured flowers of various rice types in order to investigate the morphological aspects of every part, to observe on the blossoming period, and to test the germinating power of various pollens.

(3) Under the observed results, the anthers and the stigmas of the wild plants and the separated plants from wild hybrids appeared particularly greater in measurement and more developed than those of the cultivated ones. But of the former, the pollenizing power is very weak if compared with this of the latter.

(4) The pollens within the anther of the wild plants are as stiky as mud and hard to scatter themselves on the stigma. The yellowish contents of the pollens are too coarse

(sometimes empty) and they are not similar to those dense and fine of the cultivated plants. The shape of pollens of the wild seems relatively elongate, of the cultivated seems round, and of the separated from the wild hybrids is situated between the above two kinds. The difference between the major and the minor diameters of the wild pollens is about  $3.8\mu$ , of the cultivated about  $1.4\mu$ , and of the separated about  $2.0\mu$ . Their average length of the major and the minor diameters are  $42.5 \times 41.0$ ,  $41.6 \times 37.8$ , and  $42.5 \times 40.5$  respectively (See table 4).

(5) The pollenizing function of the wild rice pollens does not seem so energetic as that of the cultivated ones. The anthers of the former are very rare to dehisce before they protrude out of the inner glumes, never burst open at both ends of the same anther, and never make an opening as large as those of the latter. Therefore the wild rice stigmas can only catch a very little pollens coming from the anthers, so the fertile percentage of the wild rice spikelets is very low.

(6) The germinating power of the wild pollens is very poor, even the maximum is not over 14%. Among the separated types from the wild hybrids, the whole sterile type W3 has only 6 percent of the maximum germinating power, the relative fertile types W5-15-2 and W5-15-4 have 80 percent which appears somewhat less than that of the cultivated type Chucham (83%). On the other hand, the fertility degree of Chucham is greater, in any year, than its highest percent of its pollen germination, while that of the wild or the separated types is often less or equivalent to zero. The reason of the last matters may be considered as that the small number of the relative developed pollens can not be easy to scatter themselves on the stigmas or they still are lack of the fertilizing power though falling on the stigmas and germinated. Besides, it is clearly seen that a great number of non-germinating pollens of the wild and the separated rice types appear easy to swell and to burst open on the germinating test bad. In relation

to the germinating test materials, a medium of 10% sugar solution is used and the testing pollens are put in the petri-dish with the stigma in the temperature about 19°C.

(7) The duration of the blossoming period of the wild rice flowers requires a longer time, over 3 hours in average of ten flowers observed, than that of the cultivated ones (less than an hour). On the other hand, the stigmas protrude out of the inner glumes immediately and remain expanded on each side after glumes closing. It is seemed surely that the chance of wild rice stigmas catching the free pollens may be more than that of the cultivated ones. But in fact, the number of pollens falling on the wild stigmas are too little or nothing, and the fertility degree is further little (ratio 1/10-7/10) than that of pollen-caught stigmas. According to the above, it may be considered that the wild rice sterility is mainly caused by the incomplete development of pollens and the incomplete pollenizing function of anthers.

(8) In summary, the morphological appearances of every part of the wild rice flowers have no particular difference from that of the cultivated ones. The anther and the stigma of the former look like more developed than that of the latter. But the pollen development and the anther pollenizing function are both incomplete. Therefore, though the chance to catch pollens seems more than that of the cultivated, yet the fertility percentage is still the lowest. However, there is in need of further study in regard to the reason why the wild rice pollens can not develop well and its relation to heredity, cytology, or physiology.

(9) Besides, there are some respects which may be attended to in regard to the causes of the lower fertility of the wild type, and the transmutation from the lower fertile wild into the higher fertile cultivated ones. Such as the separated strains W5-15-2 and W5-15-4, the external appearance of the plant characters seems to be fixed. But the fertility degree of their progeny still shows segregating continuously in further pedigree

culture, and some higher fertile individuals of their progeny appear more fertile than the parents (See Chap. 4 and Table 8-E, F). Also the new variety Yatsen No. 1 is a complete fertile strain separated from the wild plant. Perhaps the process transmuted from the lower fertile wild into the higher fertile cultivated ones might be partly traced up by this point. In addition, the variety Chinfungsueh (禁風雲) is one of the general cultivated rice, growing easily, fertilizing well and resisting strongly to poor conditions such as deep water, strong acid soil, cold water, etc. But its relative elongate shape of pollens is similar to the new variety Yatsen No. 1, and shows the difference of  $2.2\mu$  between the major and the minor diameters. As far as the pollen shape, the easy growing habit and the resisting power to poor conditions are concerned, this variety seems closely related to the wild types. It is considered that the difference between the major and the minor diameters of the pollens may be a question relatively to the transmuted process from the wild into the cultivated rice types.

附 表

第一表 野生稻與栽培稻之穎花各部大小比較

| 項 別<br>品 種   | 穎                  | 在<br>穎<br>內<br>所<br>估<br>之<br>高<br>度<br>mm. | 穎                  | 穎                  | 花                  |                    | 花                  | 柱                  | 子                  | 子                  |
|--------------|--------------------|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|              | 之<br>長<br>度<br>mm. |   | 之<br>長<br>度<br>mm. | 之<br>幅<br>度<br>mm. | 絲<br>長<br>度<br>mm. | 絲<br>幅<br>度<br>mm. | 柱<br>長<br>度<br>mm. | 頭<br>長<br>度<br>mm. | 房<br>長<br>度<br>mm. | 房<br>幅<br>度<br>mm. |
| 犀牛尾野稻        | 7.5                | 6.5   | 5.4                | 0.45               | 1.8                | 0.09               | 0.55               | 1.8                | 0.74               | 0.4                |
| 石 牌 野 稻      | 8.3                | 5.96  | 5.07               | 0.48               | 1.78               | 0.085              | 0.56               | 1.95               | 0.92               | 0.41               |
| 清遠鶴田野稻       | 8.05               | 5.9   | 5.0                | 0.47               | 1.42               | 0.092              | 0.43               | 1.52               | 1.04               | 0.44               |
| 野 稻 三 號      | 6.5                | 4.25  | 3.4                | 0.55               | 1.0                | 0.088              | 0.385              | 1.2                | 0.88               | 0.385              |
| W 5 — 15 — 2 | 9.0                | 6.0   | 4.3                | 0.47               | 2.0                | 0.099              | 0.67               | 1.27               | 1.2                | 0.42               |
| W 5 — 15 — 4 | 8.02               | 5.67  | 3.8                | 0.41               | 2.17               | 0.087              | 0.8                | 1.47               | 1.08               | 0.41               |
| 中 山 一 號      | 8.28               | 5.1   | 3.05               | 0.43               | 2.58               | 0.099              | 0.45               | 1.21               | 1.02               | 0.43               |
| 白 穀 糯        | 8.06               | 4.15  | 2.45               | 0.37               | 2.34               | 0.089              | 0.5                | 1.14               | 1.13               | 0.44               |
| 竹 粘          | 8.0                | 4.8   | 2.31               | 0.35               | 2.77               | 0.084              | 0.57               | 1.19               | 1.09               | 0.44               |
| 東 莞 白        | 7.16               | 4.0   | 2.2                | 0.38               | 2.28               | 0.087              | 0.39               | 1.12               | 0.95               | 0.42               |
| 晚造紫風雲        | 7.0                | 4.48  | 2.61               | 0.4                | 2.09               | 0.084              | 0.54               | 1.25               | 1.0                | 0.46               |

附註：上表長幅度等概十個穎花平均

第二表 各種稻之花粉長度比較

| No. | 品種名稱       | 各級長度之花粉數 |    |    |    |    |    |    |    |    |    |    | 平均長度 $\mu$ ( $\frac{1}{1000}$ mm.) |    |  |  |           |
|-----|------------|----------|----|----|----|----|----|----|----|----|----|----|------------------------------------|----|--|--|-----------|
|     |            | 20       | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |                                    | 31 |  |  |           |
| 1   | 從化錢江       | 4        | 8  | 12 | 4  | 2  |    |    |    |    |    |    |                                    |    |  |  | 36.219    |
| 2   | 野稻5-15-1   |          |    | 5  | 6  | 11 | 6  |    |    | 2  |    |    |                                    |    |  |  | 39.8949   |
| 3   | 野稻5-15-2   |          | 2  | 2  | 4  | 8  | 8  | 6  |    |    |    |    |                                    |    |  |  | 40.3293   |
| 4   | 江尾絲苗       |          |    | 1  | 8  | 7  | 11 | 2  | 1  |    |    |    |                                    |    |  |  | 40.4404   |
| 5   | 真頭布        |          |    | 5  | 1  | 10 | 6  | 6  | 2  |    |    |    |                                    |    |  |  | 40.71815  |
| 6   | 野稻一號       | 1        |    | 2  | 13 | 6  | 6  | 2  |    |    |    |    |                                    |    |  |  | 41.03145  |
| 7   | 石岐香粘       |          | 1  | 3  | 10 | 10 | 5  |    | 1  |    |    |    |                                    |    |  |  | 41.05145  |
| 8   | 單輪晚穀       |          | 1  | 2  | 13 | 8  | 2  | 2  | 1  | 1  |    |    |                                    |    |  |  | 41.27365  |
| 9   | 惡打粘 XWI    |          |    | 1  | 9  | 13 | 7  |    |    |    |    |    |                                    |    |  |  | 41.4403   |
| 10  | 大埔香糯       |          |    | 2  | 6  | 12 | 8  | 2  |    |    |    |    |                                    |    |  |  | 41.7736   |
| 11  | 糯雜         |          |    | 2  | 6  | 12 | 7  | 2  | 1  |    |    |    |                                    |    |  |  | 41.8847   |
| 12  | 清遠長額       |          |    | 2  | 4  | 10 | 12 | 1  | 1  |    |    |    |                                    |    |  |  | 42.16245  |
| 13  | 野稻5-15     |          | 1  | 2  | 6  | 6  | 11 | 1  | 2  | 1  |    |    |                                    |    |  |  | 42.2180   |
| 14  | 神江絲苗       |          | 1  | 2  | 3  | 10 | 7  | 7  |    |    |    |    |                                    |    |  |  | 42.27355  |
| 15  | 白殼齊眉       |          |    | 1  | 4  | 10 | 13 | 2  |    |    |    |    |                                    |    |  |  | 42.27355  |
| 16  | 黃粘         |          |    | 2  | 6  | 7  | 9  | 3  | 3  |    |    |    |                                    |    |  |  | 42.4402   |
| 17  | 野稻5-15-1   | 1        | 5  | 3  | 3  | 1  | 3  | 4  | 7  |    | 3  |    |                                    |    |  |  | 42.71795  |
| 18  | 禁風雪        |          |    |    | 3  | 10 | 12 | 5  |    |    |    |    |                                    |    |  |  | 42.71795  |
| 19  | 清遠鶴田       |          |    | 2  | 4  | 5  | 11 | 2  | 6  |    |    |    |                                    |    |  |  | 43.05125  |
| 20  | 竹粘         |          | 1  | 2  | 9  | 12 | 15 | 6  | 13 | 1  | 1  |    |                                    |    |  |  | 43.301225 |
| 21  | 犀牛尾        |          | 1  | 4  | 10 | 5  | 14 | 12 | 9  | 4  | 1  |    |                                    |    |  |  | 43.495905 |
| 22  | 野稻三號       |          |    | 1  | 13 | 7  | 17 | 5  | 12 | 4  | 1  |    |                                    |    |  |  | 43.578975 |
| 23  | 中山一號       |          |    | 1  | 4  | 14 | 7  | 4  |    |    |    |    |                                    |    |  |  | 43.82895  |
| 24  | 花縣石草塘      |          |    |    | 3  | 1  | 7  | 12 | 7  |    |    |    |                                    |    |  |  | 44.38445  |
| 25  | 野稻5-15-5   |          |    | 1  | 3  | 3  | 5  | 2  | 8  | 5  | 2  | 1  |                                    |    |  |  | 45.2177   |
| 26  | 靈山雪糯       |          |    |    |    | 1  | 6  | 6  | 9  | 8  |    |    |                                    |    |  |  | 45.93985  |
| 27  | 野稻5-15-1-7 |          |    |    |    | 1  | 5  | 3  | 9  | 6  | 4  | 2  |                                    |    |  |  | 46.8842   |

附注：表中之級數即顯花初時所用之接眼測微尺 (Eyepiece micrometer) 之格數每格半生為 1.6565 $\mu$  (micron)

第三表 各種稻之花粉幅度比較

| No. | 品 種 名 稱    | 各 級 幅 度 之 花 粉 數 |    |    |    |    |    |    |    |    |    |    | 平均幅度 $\mu$ ( $\frac{1}{1000}$ mm.) |    |    |  |  |           |
|-----|------------|-----------------|----|----|----|----|----|----|----|----|----|----|------------------------------------|----|----|--|--|-----------|
|     |            | 18              | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |                                    | 29 | 30 |  |  |           |
| 1   | 從化錢江       | 3               | 9  | 9  | 7  | 1  | 1  |    |    |    |    |    |                                    |    |    |  |  | 33.16425  |
| 2   | 真頭布        | 1               |    |    | 7  | 13 | 4  | 4  | 1  |    |    |    |                                    |    |    |  |  | 36.9832   |
| 3   | 清遠鶴田       |                 |    | 4  | 3  | 8  | 7  | 5  | 1  | 2  |    |    |                                    |    |    |  |  | 37.60775  |
| 4   | 野稻5-15-1   |                 |    |    | 6  | 9  | 11 |    | 2  |    | 1  | 1  |                                    |    |    |  |  | 37.8851   |
| 5   | 野稻一號       |                 |    |    | 2  | 9  | 8  | 7  | 3  | 1  |    |    |                                    |    |    |  |  | 38.49615  |
| 6   | 野稻5-15-2   |                 | 1  | 3  | 2  | 8  | 12 | 4  |    |    |    |    |                                    |    |    |  |  | 38.82933  |
| 7   | 江尾絲苗       |                 |    |    |    | 8  | 10 | 6  | 5  | 1  |    |    |                                    |    |    |  |  | 38.94055  |
| 8   | 清遠長額       |                 |    |    | 2  | 4  | 7  | 12 | 4  | 1  |    |    |                                    |    |    |  |  | 39.16275  |
| 9   | 惡打粘XWI     |                 |    |    |    | 2  | 11 | 11 | 5  | 1  |    |    |                                    |    |    |  |  | 39.5516   |
| 10  | 石岐香粘       |                 |    |    |    | 5  | 8  | 10 | 4  | 2  | 1  |    |                                    |    |    |  |  | 39.60715  |
| 11  | 單輪晚穀       |                 |    |    |    | 6  | 10 | 5  | 5  |    | 3  |    | 1                                  |    |    |  |  | 39.82935  |
| 12  | 大埔香糲       |                 |    |    |    | 2  | 8  | 12 | 6  | 2  |    |    |                                    |    |    |  |  | 39.8849   |
| 13  | 橋 糲 雜      |                 |    |    |    | 2  | 7  | 13 | 5  | 2  | 1  |    |                                    |    |    |  |  | 40.03155  |
| 14  | 花縣石草塘      |                 |    |    | 1  | 2  | 6  | 8  | 12 | 1  |    |    |                                    |    |    |  |  | 40.05155  |
| 15  | 摩牛尾        |                 |    | 1  | 2  | 7  | 9  | 20 | 11 | 6  | 1  | 1  | 1                                  | 1  |    |  |  | 40.218205 |
| 16  | 禁風雪        |                 |    |    |    | 1  | 3  | 15 | 10 | 1  |    |    |                                    |    |    |  |  | 40.38485  |
| 17  | 白殼齊眉       |                 |    |    |    | 2  | 4  | 8  | 15 | 1  |    |    |                                    |    |    |  |  | 40.49595  |
| 18  | 野稻5-15     |                 |    |    |    | 5  | 3  | 9  | 6  | 4  | 2  | 1  |                                    |    |    |  |  | 40.60705  |
| 19  | 糲 粘        |                 |    |    |    | 1  | 9  | 5  | 10 | 3  | 2  |    |                                    |    |    |  |  | 40.60705  |
| 20  | 野稻5-15-4   |                 |    | 2  | 4  | 6  |    | 2  | 2  | 6  | 3  | 3  | 2                                  |    |    |  |  | 40.71835  |
| 21  | 神江絲苗       |                 |    |    |    | 2  | 4  | 8  | 8  | 7  | 1  |    |                                    |    |    |  |  | 40.94035  |
| 22  | 中山一號       |                 |    |    |    | 1  | 1  | 4  | 16 | 7  |    | 1  |                                    |    |    |  |  | 41.71805  |
| 23  | 野稻三號       |                 |    |    | 2  | 4  | 5  | 13 | 13 | 9  | 7  | 3  | 4                                  |    |    |  |  | 41.801375 |
| 24  | 竹 粘        |                 |    |    |    | 5  | 3  | 14 | 10 | 17 | 4  | 7  |                                    |    |    |  |  | 41.968025 |
| 25  | 野稻5-15-5   |                 |    |    |    | 2  | 1  | 5  | 3  | 4  | 3  | 8  | 3                                  |    |    |  |  | 43.82895  |
| 26  | 靈山雪糲       |                 |    |    |    |    |    | 1  | 4  | 7  | 11 | 5  | 2                                  |    |    |  |  | 44.49555  |
| 27  | 野稻5-15-1-7 |                 |    |    |    | 1  |    | 3  | 7  | 8  | 7  | 3  | 1                                  |    |    |  |  | 44.93995  |

附注：表中級數及每格單位與第二表同

第四表 各種稻之花粉長幅較差及粒形

| No. | 稻之品種名稱     | 花粉之平均長度<br>( $\mu$ .) | 花粉之平均幅度<br>( $\mu$ .) | 長幅比較之差<br>( $\mu$ .) | 花粉粒形    |
|-----|------------|-----------------------|-----------------------|----------------------|---------|
| 1   | 竹粘         | 43.301225             | 41.968025             | 1.33320              | A 近圓形者  |
| 2   | 神江絲苗       | 42.27355              | 40.94035              | 1.23320              |         |
| 3   | 野稻5-15-5   | 45.21770              | 43.82895              | 1.38875              |         |
| 4   | 石岐香粘       | 41.05145              | 39.60715              | 1.44430              |         |
| 5   | 單輪晚穀       | 41.27365              | 59.82935              | 1.44430              |         |
| 6   | 靈山雪標       | 45.93985              | 44.49555              | 1.44430              |         |
| 7   | 江尾絲苗       | 40.44040              | 38.94055              | 1.49985              |         |
| 8   | 野稻5-15-2   | 40.32930              | 38.82933              | 1.49997              |         |
| 9   | 野稻5-15     | 42.21800              | 40.60705              | 1.61095              |         |
| 10  | 白殼齊眉       | 42.27355              | 40.49595              | 1.77760              |         |
| 11  | 野稻三號       | 43.578975             | 41.801375             | 1.77760              |         |
| 12  | 黃粘         | 42.44020              | 40.60705              | 1.83315              |         |
| 13  | 糯雜         | 41.88470              | 40.03155              | 1.85315              |         |
| 14  | 大浦香標       | 41.77360              | 39.88490              | 1.88870              |         |
| 15  | 黑打粘XWI     | 41.44030              | 39.55160              | 1.88870              |         |
| 16  | 野稻5-15-1-7 | 46.88420              | 44.93995              | 1.94425              |         |
| 17  | 野稻5-15-4   | 42.71795              | 40.71835              | 1.99960              |         |
| 18  | 野稻5-15-1   | 39.89490              | 37.88510              | 2.00980              |         |
| 19  | 中山一號       | 43.82895              | 41.71805              | 2.11090              | C 近橢圓形者 |
| 20  | 禁風雪        | 42.71795              | 40.38485              | 2.33310              |         |
| 21  | 野稻一號       | 41.08145              | 38.49615              | 2.53530              |         |
| 22  | 清遠長額       | 42.16245              | 39.16275              | 2.99970              |         |
| 23  | 從化錢江       | 36.21900              | 33.16425              | 3.05475              |         |
| 24  | 犀牛尾        | 43.495905             | 40.218205             | 3.27770              |         |
| 25  | 頁頭布        | 40.71815              | 36.88320              | 3.83495              |         |
| 26  | 花縣石草塘      | 44.38445              | 40.05155              | 4.33290              |         |
| 27  | 清遠德田       | 43.05125              | 37.60775              | 5.44350              |         |

附注：表中由 No.22-27 純為野稻原生種

第五表 藥之開裂情形與柱頭受粉之關係 (民國二十年晚造)

(A) 竹 粘 種

| 觀<br>察<br>時<br>日 | 觀<br>察<br>時<br>之<br>平<br>均<br>氣<br>溫 | 觀<br>察<br>時<br>之<br>濕<br>度 | 花<br>之<br>號<br>數 | 花<br>絲<br>伸<br>長<br>整<br>否 | 出<br>頭<br>外<br>前<br>或<br>後 | 粉<br>囊<br>開<br>裂<br>在<br>未<br>伸 | 粉<br>囊<br>開<br>裂<br>整<br>否 | 粉<br>囊<br>開<br>裂<br>總<br>數 | 在<br>囊<br>之<br>上<br>端<br>開<br>裂<br>個<br>數 | 在<br>囊<br>之<br>下<br>端<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>不<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>裂<br>口<br>之<br>大<br>小 | 粉<br>囊<br>下<br>端<br>裂<br>口<br>之<br>方<br>向 | 柱<br>頭<br>受<br>粉<br>否 | 柱<br>頭<br>外<br>伸<br>否 |     |
|------------------|--------------------------------------|----------------------------|------------------|----------------------------|----------------------------|---------------------------------|----------------------------|----------------------------|---|---|---------------------------------|---------------------------------|---|-----------------------|-----------------------|-----|
| 十月十七             | 27.2°c.                              | 63%                        | No. 1            | 整                          | 後                          | 不                               | 不                          | 6                          | 6   | 6   |                                 | 大                               | 側   | 向                     | 受                     | 伸一個 |
| "                | "                                    | "                          | 2                | "                          | 前                          | 不                               | 不                          | "                          | "   | "   |                                 | "                               | "   | "                     | "                     | 伸一個 |
| "                | "                                    | "                          | 3                | "                          | 前                          | 不                               | 不                          | "                          | "   | "   |                                 | "                               | 側   | 及                     | "                     | 伸一個 |
| "                | "                                    | "                          | 4                | "                          | 前                          | 不                               | 不                          | "                          | "   | "   |                                 | "                               | 側   | 向                     | "                     | 伸一個 |
| "                | "                                    | "                          | 5                | "                          | 前                          | 不                               | 不                          | 5                          | 5   | 5   | 1                               | "                               | "   | "                     | "                     | 伸一個 |
| "                | "                                    | "                          | 6                | "                          | 前                          | 不                               | 不                          | 6                          | 6   | 6   |                                 | "                               | 側   | 及                     | "                     | 伸一個 |
| "                | "                                    | "                          | 7                | "                          | "                          | 不                               | 不                          | 5                          | 5   | 5   | 1                               | "                               | 側   | 向                     | "                     | 伸一個 |
| "                | "                                    | "                          | 8                | "                          | 後                          | 不                               | 不                          | 6                          | 6   | 6   |                                 | "                               | "   | "                     | "                     | 伸一個 |
| "                | "                                    | "                          | 9                | "                          | 前                          | "                               | "                          | "                          | "   | "   |                                 | "                               | "   | "                     | "                     | "   |
| "                | "                                    | "                          | 10               | "                          | "                          | "                               | "                          | "                          | "   | "   |                                 | "                               | "   | "                     | "                     | "   |
| "                | "                                    | "                          | 11               | "                          | "                          | "                               | "                          | "                          | "   | "   |                                 | "                               | "   | "                     | "                     | 伸一個 |
| "                | "                                    | "                          | 12               | "                          | "                          | "                               | "                          | "                          | "   | "   |                                 | "                               | "   | "                     | "                     | 伸一個 |
| "                | "                                    | "                          | 13               | "                          | "                          | 不                               | 不                          | 5                          | 5   | 5   | 1                               | "                               | "   | "                     | "                     | 伸一個 |
| "                | "                                    | "                          | 14               | "                          | 前                          | 不                               | 不                          | 4                          | 4   | 4   | 2                               | "                               | "   | "                     | "                     | 伸一個 |
| 十月十九             | 24.0°c.                              | 58%                        | 15               | 不                          | 前                          | 不                               | 不                          | 6                          | 6   | 6   |                                 | "                               | 側   | 及                     | "                     | 不   |
| "                | "                                    | "                          | 16               | 不                          | "                          | "                               | "                          | "                          | "   | "   |                                 | "                               | 側   | 向                     | "                     | "   |
| "                | "                                    | "                          | 17               | "                          | "                          | "                               | "                          | "                          | "   | "   |                                 | "                               | "   | "                     | "                     | "   |
| "                | "                                    | "                          | 18               | "                          | 後                          | 不                               | 不                          | 5                          | 5   | 5   | 1                               | "                               | 側   | 及                     | "                     | 伸一個 |
| "                | "                                    | "                          | 19               | "                          | 前                          | 不                               | 不                          | 6                          | 6   | 6   |                                 | "                               | 側   | 向                     | "                     | 伸一個 |
| "                | "                                    | "                          | 20               | "                          | "                          | "                               | "                          | "                          | "   | "   |                                 | "                               | "   | "                     | "                     | "   |

附注：氣溫及濕度乃據本院氣候觀測所之觀測成績與當時觀察地點(田間或室外)之實在濕度容有多少差異合併說明

## (B) 野稻犀牛尾原生種

| 觀察時日 | 觀察時之平均氣溫 | 觀察時之濕度 | 花之號數  | 花絲伸長整否 | 出額外前或後粉囊開裂在未伸 | 粉囊開裂整否 | 粉囊開裂總數 | 在囊之上端開裂個數 | 在囊之下端開裂個數 | 粉囊不開裂個數 | 粉囊裂口之大小 | 粉囊下端裂口之方向 | 柱頭受粉否 | 柱頭外伸否 |
|------|----------|--------|-------|--------|---------------|--------|--------|-----------|-----------|---------|---------|-----------|-------|-------|
| 十月十七 | 27.2°C.  | 70%    | No. 1 | 不      | 前後            | 不      | 4      | 4         |           | 2       | 中       |           | 受     | 伸     |
| "    | "        | "      | 2     | "      | 前後            | "      | 5      | 5         |           | 1       | "       |           | 不受    | "     |
| "    | "        | "      | 3     | "      | "             | "      | 5      | 5         |           | 1       | "       |           | 不受    | "     |
| "    | "        | "      | 4     | 整      | "             | 整      | 6      | 6         |           |         | "       |           | 不受    | "     |
| 十月十九 | 24°C.    | 56%    | 5     | 不      | "             | "      | 6      | 6         | 1<br>小孔   |         | "       | 向下        | 不受    | "     |
| "    | "        | "      | 6     | "      | "             | "      | 6      | 6         |           |         | "       |           | 不受    | "     |
| "    | "        | "      | 7     | "      | "             | "      | 6      | 6         |           |         | "       |           | "     | "     |
| "    | "        | "      | 8     | "      | "             | 不整     | 4      | 4         |           | 2       | "       |           | "     | "     |
| "    | "        | "      | 9     | 整      | "             | 不整     | 6      | 6         |           | 1       | "       |           | "     | "     |
| "    | "        | "      | 10    | 不      | "             | 不整     | 5      | 5         |           |         | "       |           | "     | "     |
| "    | "        | "      | 11    | 整      | "             | 不整     | 6      | 6         |           | 1       | "       |           | "     | 伸一圓   |
| 十月廿一 | 21.1°C.  | 67%    | 13    | 不整     | "             | "      | 6      | 6         |           |         | "       |           | 受     | 伸一圓   |
| "    | "        | "      | 14    | 不整     | "             | "      | 6      | 6         | 1<br>小孔   |         | "       | 向下        | 不受    | 伸一圓   |
| "    | "        | "      | 15    | 不整     | "             | "      | 6      | 6         |           |         | "       |           | 不受    | 伸     |
| 十月廿二 | 24.5°C.  | 66%    | 16    | 不整     | "             | "      | 6      | 6         |           | 5       | "       |           | 不受    | "     |
| "    | "        | "      | 17    | 不整     | "             | 不整     | 1      | 1         |           |         | "       |           | 不受    | "     |
| "    | "        | "      | 18    | 不整     | "             | 不整     | 6      | 6         | 1<br>小孔   |         | "       | 向下        | 不受    | "     |
| "    | "        | "      | 19    | "      | "             | "      | 6      | 6         |           |         | "       |           | "     | "     |
| "    | "        | "      | 20    | "      | "             | "      | 6      | 6         |           |         | "       |           | "     | 伸一圓   |



## (D) 野 稻 5-15-2

| 觀<br>察<br>時<br>日 | 觀<br>察<br>時<br>之<br>平<br>均<br>氣<br>溫 | 觀<br>察<br>時<br>之<br>濕<br>度 | 花<br>之<br>號<br>數 | 花<br>絲<br>伸<br>長<br>整<br>否 | 粉<br>囊<br>開<br>裂<br>在<br>前<br>或<br>後<br>伸 | 粉<br>囊<br>開<br>裂<br>整<br>否 | 粉<br>囊<br>開<br>裂<br>總<br>數 | 在<br>囊<br>之<br>上<br>端<br>開<br>裂<br>個<br>數 | 在<br>囊<br>之<br>下<br>端<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>不<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>裂<br>口<br>之<br>大<br>小 | 粉<br>囊<br>下<br>端<br>裂<br>口<br>之<br>方<br>向 | 柱<br>頭<br>受<br>粉<br>否 | 柱<br>頭<br>外<br>伸<br>否 |
|------------------|--------------------------------------|----------------------------|------------------|----------------------------|---|----------------------------|----------------------------|---|---|---------------------------------|---------------------------------|---|-----------------------|-----------------------|
| 十月廿八             | 24.2°c.                              | 50%                        | No 1             | 整                          | 後   | 不                          | 5                          | 5   | 2   | 小孔                              | 1                               | 側向  | 受                     | 伸                     |
| "                | "                                    | "                          | 2                | "                          | "   | "                          | 5                          | 5   | 1   | "                               | 1                               | "   | "                     | 伸一圓                   |
| "                | "                                    | "                          | 3                | 不                          | "   | "                          | 5                          | 4   | 2   | "                               | 1                               | "   | "                     | 伸                     |
| "                | "                                    | "                          | 4                | "                          | 不開  | "                          | "                          | "   | "   | "                               | "                               | "   | 不                     | "                     |
| "                | "                                    | "                          | 5                | "                          | 後   | "                          | 3                          | 3   | 2   | "                               | 3                               | "   | "                     | "                     |
| "                | "                                    | "                          | 6                | "                          | "   | "                          | 6                          | 5   | 1   | "                               | "                               | "   | "                     | "                     |
| "                | "                                    | "                          | 7                | "                          | "   | "                          | 1                          | 1   | "   | 5                               | "                               | "   | "                     | "                     |
| "                | "                                    | "                          | 8                | "                          | "   | "                          | 3                          | 3   | "   | 3                               | "                               | "   | 受                     | 伸一圓                   |
| "                | "                                    | "                          | 9                | 整                          | "   | "                          | 6                          | 6   | "   | "                               | "                               | "   | "                     | 伸                     |
| 十月三十             | 25°c.                                | 50%                        | 10               | 不                          | "   | "                          | 1                          | 1   | "   | 5                               | "                               | "   | 不                     | "                     |
| "                | "                                    | "                          | 11               | "                          | 不開  | "                          | "                          | "   | "   | "                               | "                               | "   | "                     | 不                     |
| "                | "                                    | "                          | 12               | "                          | 後   | "                          | 3                          | 3   | "   | 3                               | "                               | "   | "                     | 伸一圓                   |
| "                | "                                    | "                          | 13               | "                          | "   | "                          | 2                          | 2   | "   | 4                               | "                               | "   | 受                     | 伸                     |
| "                | "                                    | "                          | 14               | "                          | "   | "                          | 1                          | 1   | "   | 5                               | "                               | "   | 不                     | 伸一圓                   |
| "                | "                                    | "                          | 15               | "                          | "   | "                          | 1                          | 1   | "   | 5                               | "                               | "   | "                     | 伸                     |
| 十月卅一             | 26.5°c.                              | 54%                        | 16               | "                          | 不開  | "                          | "                          | "   | "   | "                               | "                               | "   | "                     | 伸                     |
| "                | "                                    | "                          | 17               | "                          | 後   | "                          | 4                          | 4   | 1   | "                               | 2                               | "   | 受                     | "                     |
| "                | "                                    | "                          | 18               | "                          | "   | "                          | 1                          | 1   | "   | 5                               | "                               | "   | 不                     | "                     |
| "                | "                                    | "                          | 19               | "                          | "   | "                          | 4                          | 4   | "   | 2                               | "                               | "   | 不                     | "                     |
| "                | "                                    | "                          | 20               | "                          | "   | "                          | 2                          | 2   | "   | 4                               | "                               | "   | 不                     | 不                     |

(E) 野稻 5-15-4

| 觀察時日 | 觀察時之平均氣溫 | 觀察時之濕度 | 花之號數  | 花絲伸長整否 | 粉囊開裂在木後 | 伸出顯外前或後 | 粉囊開裂整否 | 粉囊開裂總數 | 在囊之上端開裂個數 | 在囊之下端開裂個數 | 粉囊不開裂個數 | 粉囊裂口之大小 | 粉囊下端裂口之方向 | 柱頭受粉否 | 柱頭外伸否 |
|------|----------|--------|-------|--------|---------|---------|--------|--------|-----------|-----------|---------|---------|-----------|-------|-------|
| 十月廿八 | 23°C     | 49%    | No. 1 | 整      | 後       | 整       | 6      | 6      | 3         |           |         | 中       | 側向        | 受     | 伸     |
| "    | "        | "      | 2     | 不整     | 前後      | "       | "      | "      | 2         |           | "       | "       | "         | "     | 伸一圓   |
| "    | "        | "      | 3     | 不整     | 前後      | "       | "      | "      | 4         |           | "       | "       | "         | "     | 伸     |
| "    | "        | "      | 4     | "      | 後       | "       | "      | "      | "         |           | "       | "       | "         | "     | 伸一圓   |
| "    | "        | "      | 5     | "      | 前後      | "       | "      | "      | 3         |           | "       | "       | "         | "     | 伸     |
| "    | "        | "      | 6     | "      | 後       | "       | "      | "      | 2         |           | "       | "       | "         | "     | "     |
| "    | "        | "      | 7     | "      | "       | "       | "      | "      | "         |           | "       | "       | "         | "     | "     |
| "    | "        | "      | 8     | "      | "       | "       | "      | "      | 1         |           | "       | 小       | "         | "     | "     |
| "    | "        | "      | 9     | "      | "       | "       | "      | "      | 5         |           | "       | "       | "         | "     | "     |
| "    | "        | "      | 10    | "      | "       | "       | "      | "      | 3         |           | "       | 中       | "         | "     | "     |
| 十月廿九 | 24.8°C   | 50%    | 11    | "      | "       | "       | "      | "      | 6         |           | "       | 中小      | "         | "     | "     |
| "    | "        | "      | 12    | 不      | 前後      | "       | "      | "      | 2         |           | "       | "       | "         | "     | 不伸    |
| "    | "        | "      | 13    | "      | "       | "       | "      | "      | 4         |           | "       | "       | "         | "     | "     |
| "    | "        | "      | 14    | "      | 後       | "       | "      | "      | 6         |           | "       | "       | "         | "     | "     |
| 十月卅日 | 25°C     | 54%    | 15    | "      | "       | 不       | 4      | 4      | 1         | 2         | 中       | "       | "         | "     | "     |
| "    | "        | "      | 16    | "      | "       | "       | 5      | 5      |           | 1         | "       | "       | "         | "     | "     |
| "    | "        | "      | 17    | "      | 前後      | 整       | 6      | 6      | 2         |           | "       | 小       | "         | "     | "     |
| 十月卅一 | 26.5°C   | 54%    | 18    | "      | 後       | "       | "      | "      | 1         |           | "       | 中       | "         | "     | "     |
| "    | "        | "      | 19    | 整      | "       | "       | "      | "      | "         |           | "       | "       | "         | "     | 伸一圓   |
| "    | "        | "      | 20    | 不      | "       | "       | "      | "      | 2         |           | "       | "       | "         | "     | 伸     |

第六表 藥之開裂情形與柱頭受粉情形 (民國廿一年晚造)

## (A) 竹粘種

| 觀察時日 | 觀察時之平均氣溫 | 觀察時之濕度 | 花之號數  | 花絲伸長整否 | 粉囊伸出額外前或後 | 粉囊開裂整否 | 粉囊開裂總數 | 在囊之上端開裂個數 | 在囊之下端開裂個數 | 粉囊不開裂個數 | 粉囊裂口之大小 | 粉囊下端裂口之方向 | 柱頭受粉否 | 柱頭外伸否 |
|------|----------|--------|-------|--------|-----------|--------|--------|-----------|-----------|---------|---------|-----------|-------|-------|
| 十月十四 | 25.2°C   | 56%    | No. 1 | 整      | 前         | 整      | 6      | 6         | 6         |         | 大       | 側向        | 受     | 不     |
| "    | "        | "      | 2     | "      | "         | "      | 6      | 6         | 6         |         | "       | "         | "     | "     |
| "    | "        | "      | 3     | "      | "         | "      | 6      | 5         | 6         |         | "       | "         | "     | "     |
| "    | "        | "      | 4     | "      | "         | "      | 6      | 6         | 6         |         | "       | "         | "     | "     |
| "    | "        | "      | 5     | "      | "         | "      | 6      | 6         | 6         |         | "       | "         | "     | "     |
| "    | "        | "      | 6     | "      | "         | "      | 6      | 6         | 6         |         | "       | "         | "     | "     |
| "    | "        | "      | 7     | 不      | 後         | 不      | 2      |           | 2         | 4       | "       | "         | 不     | "     |
| "    | "        | "      | 8     | "      | 不開        | "      |        |           |           |         | "       | "         | "     | "     |
| 十月廿二 | 26.6°C   | 43%    | 9     | 整      | 前         | 整      | 6      | 6         | 6         |         | "       | "         | 受     | "     |
| "    | "        | "      | 10    | 不      | 前後        | 不      | 5      | 5         | 5         | 1       | "       | "         | "     | "     |
| "    | "        | "      | 11    | "      | 前後        | "      | 6      | 6         | 6         |         | 中       | "         | "     | "     |
| "    | "        | "      | 12    | 整      | 前         | 整      | 6      | 6         | 5         |         | 大       | "         | "     | "     |
| "    | "        | "      | 13    | "      | "         | "      | 6      | 6         | 6         |         | "       | "         | "     | "     |
| "    | "        | "      | 14    | "      | "         | "      | 6      | 6         | 6         |         | "       | "         | "     | "     |
| "    | "        | "      | 15    | 不      | "         | 不      | 5      | 5         | 6         |         | "       | "         | "     | 伸一個   |
| "    | "        | "      | 16    | "      | "         | "      | 5      | 5         | 6         |         | "       | "         | "     | 伸一個   |
| "    | "        | "      | 17    | "      | "         | 整      | 6      | 6         | 6         |         | "       | "         | "     | 伸不    |
| "    | "        | "      | 18    | 整      | 不開        | "      |        |           |           |         | "       | "         | 不     | "     |
| "    | "        | "      | 19    | 不      | 前         | 整      | 6      | 6         | 6         |         | "       | "         | "     | 伸     |
| "    | "        | "      | 20    | "      | "         | "      | 6      | 5         | 6         |         | "       | "         | "     | 伸一個   |

附注：氣溫及濕度之根據與第五表同

## (B) 野稻犀牛尾原生種

| 觀察時日  | 觀察時之平均氣溫 | 觀察時之濕度 | 花之號數  | 花絲伸長整否 | 粉囊伸開裂在後未 | 伸出額外前或後 | 粉囊開裂整否 | 粉囊開裂總數 | 在囊之上端開裂個數 | 在囊之下端開裂個數 | 粉囊不開裂個數 | 粉囊裂口之大小 | 粉囊下裂口之方向 | 柱頭受粉否 | 柱頭外伸否 |
|-------|----------|--------|-------|--------|----------|---------|--------|--------|-----------|-----------|---------|---------|----------|-------|-------|
| 十月十七日 | 25°C.    | 58%    | No. 1 | 整      | 前後       | 不       | 6      | 6      | 3         |           |         | 中       | 側向       | 不     | 伸     |
| "     | "        | "      | 2     | "      | "        | "       | 6      | 6      | 4         |           |         | "       | "        | 受     | "     |
| "     | "        | "      | 3     | 不      | "        | "       | 6      | 6      | 4         |           |         | "       | "        | "     | "     |
| "     | "        | "      | 4     | "      | "        | "       | 5      | 5      | 1         | 1         |         | "       | "        | "     | "     |
| "     | "        | "      | 5     | 整      | "        | "       | 6      | 6      | 4         |           |         | "       | "        | "     | "     |
| "     | "        | "      | 6     | "      | "        | "       | 6      | 6      | 2         |           |         | "       | "        | "     | "     |
| "     | "        | "      | 7     | "      | 前        | "       | 6      | 6      | 5         |           |         | "       | "        | "     | 伸一圓   |
| "     | "        | "      | 8     | "      | "        | "       | 6      | 6      | 2         |           |         | "       | "        | "     | "     |
| "     | "        | "      | 9     | "      | 後        | "       | 6      | 6      | 1         |           |         | "       | "        | "     | "     |
| "     | "        | "      | 10    | 不      | 不開       | "       | —      |        |           |           |         | "       | "        | 不     | "     |
| "     | "        | "      | 11    | 整      | "        | "       | —      |        |           |           |         | "       | "        | "     | 伸     |
| "     | "        | "      | 12    | "      | 前後       | "       | 6      | 6      | 4         |           |         | "       | "        | 受     | 伸一圓   |
| "     | "        | "      | 13    | "      | 前        | 整       | 6      | 6      | 5         |           |         | "       | "        | "     | "     |
| "     | "        | "      | 14    | 不      | "        | "       | 6      | 6      | 5         |           |         | "       | "        | "     | "     |
| 十月十四日 | 25.2°C.  | 56%    | 15    | 不      | "        | 不       | 1      | 1      |           | 5         |         | "       | "        | 不     | 伸     |
| "     | "        | "      | 16    | 不      | 不開       | "       | —      |        |           |           |         | "       | "        | "     | "     |
| "     | "        | "      | 17    | "      | 前後       | 不       | 3      | 2      | 3         | 3         |         | "       | "        | 受     | "     |
| "     | "        | "      | 18    | "      | 後        | "       | 1      | 1      |           | 5         |         | "       | "        | 不     | "     |
| "     | "        | "      | 19    | "      | "        | "       | 5      | 5      | 1         | 1         |         | "       | "        | 受     | "     |
| "     | "        | "      | 20    | "      | 前後       | "       | 3      | 3      | 2         | 3         |         | "       | "        | "     | "     |

附注：(C) 野稻第三號觀察表缺

## (D) 野 稻 5—15—2

| 觀<br>察<br>時<br>日 | 觀<br>察<br>時<br>之<br>平<br>均<br>氣<br>溫 | 觀<br>察<br>時<br>之<br>濕<br>度 | 花<br>之<br>號<br>數 | 花<br>絲<br>伸<br>長<br>整<br>否 | 粉<br>囊<br>開<br>裂<br>在<br>前<br>或<br>後<br>未 | 粉<br>囊<br>開<br>裂<br>整<br>否 | 粉<br>囊<br>備<br>裂<br>總<br>數 | 在<br>囊<br>之<br>上<br>端<br>開<br>裂<br>個<br>數 | 在<br>囊<br>之<br>下<br>端<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>不<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>裂<br>口<br>之<br>大<br>小 | 粉<br>囊<br>下<br>端<br>裂<br>口<br>之<br>方<br>向 | 柱<br>頭<br>受<br>粉<br>否 | 柱<br>頭<br>外<br>伸<br>否 |
|------------------|--------------------------------------|----------------------------|------------------|----------------------------|---|----------------------------|----------------------------|---|---|---------------------------------|---------------------------------|---|-----------------------|-----------------------|
| 十月廿九             | 26.6°C                               | 54%                        | No. 1            | 不                          | 前   | 不                          | 1                          | 1   |   | 5                               | 小                               |   | 不                     | 伸                     |
| "                | "                                    | "                          | 2                | "                          | 後   | "                          | 3                          | 3   | 1   | 3                               | "                               | 側向  | 不                     | "                     |
| "                | "                                    | "                          | 3                | "                          | 不   | 不                          |                            |   |   |                                 |                                 |   | 不                     | "                     |
| "                | "                                    | "                          | 4                | "                          | "   | "                          |                            |   |   |                                 |                                 |   | 不                     | "                     |
| "                | "                                    | "                          | 5                | "                          | 後   | "                          | 1                          | 1   |   | 5                               | "                               |   | 不                     | 伸一個                   |
| "                | "                                    | "                          | 6                | "                          | 不   | 不                          |                            |   |   |                                 |                                 |   | 不                     | 伸                     |
| "                | "                                    | "                          | 7                | "                          | 前   | 後                          | 5                          | 5   | 1   | 1                               | "                               | "   | 受                     | 伸                     |
| "                | "                                    | "                          | 8                | "                          | 不   | 不                          |                            |   |   |                                 |                                 |   | 不                     | "                     |
| "                | "                                    | "                          | 9                | "                          | 前   | "                          | 4                          | 4   |   | 2                               | "                               |   | 不                     | "                     |
| "                | "                                    | "                          | 10               | "                          | 不   | 不                          |                            |   |   |                                 |                                 |   | 不                     | 伸一個                   |
| "                | "                                    | "                          | 11               | "                          | 前   | "                          | 2                          | 1   | 1   | 4                               | "                               | "   | 受                     | "                     |
| "                | "                                    | "                          | 12               | "                          | 不   | 不                          |                            |   |   |                                 |                                 |   | 不                     | 伸                     |
| "                | "                                    | "                          | 13               | "                          | "   | "                          |                            |   |   |                                 |                                 |   | 不                     | 伸一個                   |
| "                | "                                    | "                          | 14               | "                          | 後   | "                          | 2                          | 2   |   | 4                               | "                               |   | 不                     | 伸                     |
| "                | "                                    | "                          | 15               | "                          | 前   | "                          | 2                          | 2   |   | 4                               | "                               |   | 不                     | "                     |
| "                | "                                    | "                          | 16               | "                          | 後   | "                          | 2                          | 1   | 1   | 4                               | "                               | "   | 不                     | 伸一個                   |
| "                | "                                    | "                          | 17               | "                          | 不   | 不                          |                            |   |   |                                 |                                 |   | 不                     | "                     |
| "                | "                                    | "                          | 18               | "                          | 後   | "                          | 1                          | 1   |   | 5                               | "                               |   | 不                     | 伸                     |
| "                | "                                    | "                          | 19               | "                          | 前   | "                          | 2                          | 2   |   | 4                               | "                               |   | 不                     | 伸一個                   |
| "                | "                                    | "                          | 20               | "                          | 前   | 後                          | 5                          | 5   |   | 1                               | "                               |   | 受                     | "                     |

(E) 野 稻 5—15—4

| 觀<br>察<br>時<br>日 | 觀<br>察<br>時<br>之<br>平<br>均<br>氣<br>溫 | 觀<br>察<br>時<br>之<br>濕<br>度 | 花<br>之<br>號<br>數 | 花<br>絲<br>伸<br>長<br>整<br>否 | 粉<br>囊<br>開<br>裂<br>在<br>未<br>後 | 伸<br>出<br>穎<br>外<br>前<br>或<br>後 | 粉<br>囊<br>開<br>裂<br>整<br>否 | 粉<br>囊<br>開<br>裂<br>總<br>數 | 在<br>囊<br>之<br>上<br>端<br>開<br>裂<br>個<br>數 | 在<br>囊<br>之<br>下<br>端<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>不<br>開<br>裂<br>個<br>數 | 粉<br>囊<br>裂<br>口<br>之<br>大<br>小 | 粉<br>囊<br>裂<br>口<br>之<br>方<br>向 | 柱<br>頭<br>受<br>粉<br>否 | 柱<br>頭<br>外<br>伸<br>否 |
|------------------|--------------------------------------|----------------------------|------------------|----------------------------|---------------------------------|---------------------------------|----------------------------|----------------------------|---|---|---------------------------------|---------------------------------|---------------------------------|-----------------------|-----------------------|
| 十月廿六             | 26°c.                                | 52%                        | No. 1            | 整                          | 前                               | 整                               | 6                          | 6                          | 3   |   |                                 | 中                               | 側向                              | 受                     | 伸一固                   |
| "                | "                                    | "                          | 2                | "                          | "                               | "                               | 6                          | 6                          | 4   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 3                | 不                          | "                               | "                               | 6                          | 6                          | 2   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 4                | "                          | 後                               | 不                               | 2                          | 2                          |   | 4   |                                 | "                               | "                               | 不                     | 伸一固                   |
| "                | "                                    | "                          | 5                | 整                          | 前                               | 不                               | 6                          | 6                          | 5   |   |                                 | "                               | "                               | 受                     | 伸一固                   |
| "                | "                                    | "                          | 6                | 不                          | 後                               | 不                               | 1                          | 1                          |   | 5   |                                 | "                               | "                               | 不                     | 伸一固                   |
| "                | "                                    | "                          | 7                | "                          | 前                               | "                               | 6                          | 6                          | 4   |   |                                 | "                               | "                               | 受                     | 伸一固                   |
| "                | "                                    | "                          | 8                | "                          | "                               | 整                               | 6                          | 6                          | 4   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 9                | 整                          | "                               | "                               | 6                          | 6                          | 3   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 10               | "                          | "                               | "                               | 6                          | 6                          | 4   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 11               | "                          | "                               | "                               | 6                          | 6                          | 3   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 12               | "                          | "                               | "                               | 6                          | 6                          | 3   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 13               | "                          | "                               | "                               | 6                          | 6                          | 3   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 14               | "                          | "                               | "                               | 6                          | 6                          | 4   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 15               | "                          | "                               | "                               | 6                          | 6                          | 6   |   |                                 | "                               | "                               | "                     | "                     |
| "                | "                                    | "                          | 16               | "                          | "                               | 不                               | 3                          | 3                          | 1   | 3   |                                 | "                               | "                               | "                     | "                     |
| "                | "                                    | "                          | 17               | "                          | "                               | 不                               | 6                          | 6                          | 2   |   |                                 | "                               | "                               | "                     | 伸一固                   |
| "                | "                                    | "                          | 18               | "                          | "                               | "                               | 6                          | 6                          | 2   |   |                                 | "                               | "                               | "                     | "                     |
| "                | "                                    | "                          | 19               | "                          | "                               | "                               | 6                          | 6                          | 5   |   |                                 | "                               | "                               | "                     | "                     |
| "                | "                                    | "                          | 20               | "                          | "                               | "                               | 6                          | 6                          | 3   |   |                                 | "                               | "                               | "                     | 伸一固                   |

第七表 各種稻花葯囊開裂情形與柱頭受粉情形之比較

| 稻 之 品 種           |                           | 栽<br>培<br>稻<br>竹<br>粘 | 野<br>稻<br>犀<br>牛<br>尾<br>原<br>種 | 野<br>稻<br>三<br>號 | 野<br>稻<br>5-15-2 | 野<br>稻<br>5-15-4 |
|-------------------|---------------------------|-----------------------|---------------------------------|------------------|------------------|------------------|
| 觀 察 花 數           |                           | 40                    | 40                              | 20               | 40               | 40               |
| 花 絲 伸 長           | 整 齊 者 之 花 數               | 30                    | 19                              | 1                | 3                | 26               |
|                   | 不 整 齊 者 之 花 數             | 10                    | 21                              | 19               | 37               | 14               |
| 葯 囊 開 裂 時 期       | 在 未 伸 出 顯 外 前 者 之 花 數     | 36                    | 15                              | 0                | 7                | 23               |
|                   | 在 伸 出 顯 外 後 者 之 花 數       | 2                     | 22                              | 8                | 22               | 17               |
|                   | 全 部 開 裂 者 之 花 數           | 29                    | 24                              | 0                | 2                | 35               |
| 葯 囊 開 裂 數         | 開 裂 半 數 以 上 者 之 花 數       | 8                     | 10                              | 3                | 12               | 3                |
|                   | 開 裂 半 數 以 下 者 之 花 數       | 1                     | 3                               | 5                | 15               | 2                |
|                   | 全 部 不 開 裂 者 之 花 數         | 2                     | 3                               | 12               | 11               | 0                |
| 葯 囊 開 裂 部 位       | 全 部 在 上 端 開 裂 者 之 花 數     | 28                    | 24                              | 0                | 1                | 32               |
|                   | 半 數 以 上 在 上 端 開 裂 者 之 花 數 | 9                     | 9                               | 3                | 13               | 6                |
|                   | 半 數 以 下 在 上 端 開 裂 者 之 花 數 | 0                     | 4                               | 5                | 15               | 2                |
|                   | 全 部 在 下 端 開 裂 者 之 花 數     | 30                    | 0                               | 0                | 0                | 1                |
|                   | 半 數 以 上 在 下 端 開 裂 者 之 花 數 | 7                     | 9                               | 0                | 0                | 20               |
| 葯 囊 裂 口 大 小       | 半 數 以 下 在 下 端 開 裂 者 之 花 數 | 1                     | 9                               | 0                | 10               | 15               |
|                   | 裂 口 大 者 之 花 數             | 37                    | 0                               | 0                | 0                | 0                |
|                   | 裂 口 中 等 者 之 花 數           | 1                     | 37                              | 0                | 0                | 33               |
| 葯 囊 下 端 裂 口 之 方 向 | 裂 口 小 者 之 花 數             | 0                     | 0                               | 8                | 29               | 7                |
|                   | 向 下 者 之 花 數               | 4                     | 3                               | 0                | 0                | 0                |
| 柱 頭 受 粉           | 側 向 者 之 花 數               | 34                    | 15                              | 0                | 10               | 36               |
|                   | 受 粉 者 之 花 數               | 37                    | 23                              | 2                | 12               | 38               |
| 柱 頭 外 伸           | 不 受 粉 者 之 花 數             | 3                     | 17                              | 18               | 28               | 2                |
|                   | 全 部 外 伸 者 之 花 數           | 5                     | 30                              | 11               | 26               | 27               |
|                   | 一 部 外 伸 者 之 花 數           | 10                    | 10                              | 6                | 12               | 12               |
|                   | 全 部 不 外 伸 者 之 花 數         | 25                    | 0                               | 3                | 2                | 1                |

第八表 各種水稻開花時間及受粉結實情形  
(A) 石牌野稻 (民國廿二年晚造)

| 觀<br>察<br>時<br>日 | 花<br>數 | 觀<br>察<br>時<br>之<br>平<br>均<br>氣<br>溫 | 觀<br>察<br>時<br>之<br>濕<br>度 | 開<br>穎<br>及<br>閉<br>穎<br>之<br>時<br>刻 | 熱<br>囊<br>開<br>裂<br>時<br>間 | 花<br>絲<br>停<br>長<br>停<br>止<br>時<br>間 | 花<br>絲<br>開<br>始<br>萎<br>垂<br>時<br>間 | 花<br>絲<br>完<br>全<br>萎<br>垂<br>時<br>間 | 柱<br>頭<br>開<br>展<br>停<br>止<br>時<br>間 | 柱<br>頭<br>外<br>垂<br>時<br>間 | 柱<br>頭<br>受<br>粉<br>情<br>形 | 開<br>穎<br>停<br>止<br>時<br>間 | 閉<br>穎<br>開<br>始<br>時<br>間 | 閉<br>穎<br>停<br>止<br>時<br>間 | 結<br>實<br>圖<br>數 |
|------------------|--------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------------|
| 10月9日            | 1      | 26.1°c                               | 63%                        | 1/43-<br>3/28                        | 2'                         | 7' 1'                                | 2'                                   | 1'                                   | 2'                                   | 1'                         | 少                          | 2'                         | 23'                        | 106'                       | 結實               |
| "                | 2      | "                                    | "                          | 1/44-<br>3/35                        | 0                          | 8' 1'                                | 2'                                   | 1'                                   | 一圓                                   | 1'                         | 多                          | 2'                         | 21'                        | 111'                       | "                |
| "                | 3      | "                                    | "                          | 1/44-<br>3/29                        | 2'                         | 8' 1'                                | 2'                                   | 1'                                   | 1'                                   | 1'                         | 少                          | 2'                         | 23'                        | 105'                       | "                |
| "                | 4      | "                                    | "                          | 1/44-<br>3/31                        | 2'                         | 8' 1'                                | 2'                                   | 1'                                   | 一圓                                   | 1'                         | 少                          | 2'                         | 23'                        | 107'                       | 不實               |
| "                | 5      | "                                    | "                          | 1/48-<br>3/31                        | 1'                         | 11' 1'                               | 2'                                   | 1'                                   | 1'                                   | 3'                         | 少                          | 2'                         | 20'                        | 103'                       | 結實               |
| "                | 6      | "                                    | "                          | 1/49-<br>3/34                        | 0                          | 9' 1'                                | 2'                                   | 1'                                   | 1'                                   | 3'                         | 多                          | 2'                         | 19'                        | 105'                       | "                |
| 10月10日           | 7      | 26°c                                 | 73%                        | 12/30-<br>2/32                       | 2'                         | 10' 1'                               | 2'                                   | 1'                                   | 1'                                   | 2'                         | 極少                         | 2'                         | 9'                         | 122'                       | 不實               |
| "                | 8      | "                                    | "                          | 12/30-<br>2/37                       | 1'                         | 10' 1'                               | 2'                                   | 1'                                   | 1'                                   | 2'                         | 少                          | 3'                         | 15'                        | 127'                       | 結實               |
| "                | 9      | "                                    | "                          | 12/31-<br>2/40                       | 1'                         | 9' 1'                                | 2'                                   | 1'                                   | 1'                                   | 2'                         | 多                          | 3'                         | 19'                        | 129'                       | 不實               |
| "                | 10     | "                                    | "                          | 12/31-<br>2/42                       | 2'                         | 11' 1'                               | 2'                                   | 1'                                   | 1'                                   | 2'                         | 極少                         | 2'                         | 16'                        | 131'                       | 結實               |
| 平 均              |        | 26.05°c                              | 63%                        |                                      | 1'18"                      | 9'6"                                 | 1'                                   | 2'                                   | 1'                                   | 2'3"                       |                            | 2'12"                      | 18'48"                     | 114'36"                    | 7/10             |
| 極 數              |        | 26°-<br>26.1°c                       | 63-<br>73%                 |                                      | 0-2'                       | 7'11"                                | 1'                                   | 2'                                   | 1'                                   | 1'4"-3'                    |                            | 2-3'                       | 9'-23'                     | 103'-<br>131'              |                  |

附注：氣溫及濕度之根據與第五表同。

(B) 清遠鶴田野稻 (民國廿二年晚造)

| 觀察<br>時<br>日 | 花<br>數 | 觀察時之<br>平均氣溫      | 觀察時之<br>濕度 | 開穎及閉穎之<br>時刻   | 約<br>幾<br>開<br>裂<br>時<br>間 | 花<br>絲<br>停<br>長<br>停<br>止<br>時<br>間 | 花<br>絲<br>開<br>始<br>萎<br>垂<br>時<br>間 | 花<br>絲<br>完<br>全<br>萎<br>垂<br>時<br>間 | 柱<br>頭<br>開<br>展<br>停<br>止<br>時<br>間 | 柱<br>頭<br>外<br>垂<br>時<br>間 | 柱<br>頭<br>受<br>粉<br>情<br>形 | 開<br>穎<br>停<br>止<br>時<br>間 | 閉<br>穎<br>開<br>始<br>時<br>間 | 閉<br>穎<br>停<br>止<br>時<br>間 | 結<br>實<br>個<br>數 |
|--------------|--------|-------------------|------------|----------------|----------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------------|
| 10月<br>13日   | 1      | 24.8°C            | 57%        | 12/34-<br>2:18 | 1'                         | 16'                                  | 1'                                   | 11'                                  | 6<br>一團                              | 11'                        | 頗多                         | 3'                         | 26'                        | 104'                       | 不實               |
| "            | 2      | "                 | "          | 12/50-<br>2:27 | 1'                         | 18'                                  | 1'                                   | 11'                                  | 不<br>外<br>伸                          |                            | "                          | 7'                         | 28'                        | 97'                        | 結實               |
| "            | 3      | "                 | "          | 12/55-<br>2:20 | 1'                         | 14'                                  | 1'                                   | 2'                                   | 4'                                   | 9'                         | 少                          | 5'                         | 29'                        | 85'                        | 不實               |
| 10月<br>14日   | 4      | 26.4°C            | 53%        | 12/2-<br>1:42  | 1'                         | 15'                                  | 1'                                   | 11'                                  | 2'                                   | 6'                         | "                          | 5'                         | 26'                        | 40'                        | "                |
| "            | 5      | "                 | "          | 12/5-<br>1:50  | 1'                         | 16'                                  | 1'                                   | 11'                                  | 4'                                   | 9'                         | 頗多                         | 5'                         | 24'                        | 45'                        | 結實               |
| "            | 6      | "                 | "          | 12/16-<br>1:55 | 1'                         | 13'                                  | 1'                                   | 11'                                  | 2'                                   | 6'                         | 少                          | 5'                         | 29'                        | 99'                        | "                |
| "            | 7      | "                 | "          | 12/51-<br>2:22 | 1'                         | 11'                                  | 1'                                   | 2'                                   | 4'                                   | 8'                         | 頗多                         | 4'                         | 23'                        | 91'                        | 不實               |
| "            | 8      | "                 | "          | 1/1-<br>2:32   | 1'                         | 14'                                  | 1'                                   | 2'                                   | 2'                                   | 4'                         | 少                          | 5'                         | 21'                        | 91'                        | 結實               |
| "            | 9      | "                 | "          | 1/10-<br>2:37  | 1'                         | 11'                                  | 1'                                   | 2'                                   | 2'                                   | 6'                         | "                          | 4'                         | 22'                        | 87'                        | 不實               |
| "            | 10     | "                 | "          | 1/12-<br>2:40  | 1'                         | 12'                                  | 1'                                   | 11'                                  | 1'                                   | 4'                         | 頗多                         | 4'                         | 22'                        | 88'                        | 結實               |
| 平<br>均       |        | 25.6°C            | 55%        |                |                            | 36'                                  | 14'                                  | 1'                                   | 1:42                                 | 3'                         | 7'                         | 4:42                       | 25'                        | 82:42                      | 5:10             |
| 極<br>數       |        | 24.8°C-<br>26.4°C | 53-<br>57% |                |                            | 11-<br>18'                           | 1'                                   | 11-<br>14:2                          | 1'-6                                 | 4'-11                      |                            | 3-7                        | 21-29                      | 40-104                     |                  |

(C) 犀牛尾野稻 (民國二十年晚造)

| 觀察時日   | 花數 | 觀察時之平均氣溫        | 觀察時之濕度  | 開穎及閉穎之時刻   | 熱蟲開裂時間 | 花絲伸長停止時間 | 花絲開始萎垂時間 | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間 | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間  | 閉穎停止時間    | 結實個數 |
|--------|----|-----------------|---------|------------|--------|----------|----------|----------|----------|--------|--------|--------|---------|-----------|------|
| 10月8日  | 1  | 30.6°c.         | 74%     | 11.38-2/17 | 5'     | 4'       | 3'       | 7'       | 2'       | 6'     | 無      | 4'     | 19'     | 259'      | 不實   |
| "      | 2  | "               | "       | 12/17-3/10 | 3'     | 4'       | 3'       | 5'       | 5'       | 7'     | "      | 4'     | 19'     | 173'      | "    |
| 10月12日 | 3  | 23.8°c.         | 57%     | 12/27-3/38 | 5'     | 4'       | 3'       | 5'       | 5'       | 8'     | "      | 7'     | 23'     | 191'      | "    |
| "      | 4  | "               | "       | 1/6-4/24   | 5'     | 2'       | 3'       | 5'       | 5'       | 8'     | 甚少     | 8'     | 19'     | 198'      | "    |
| "      | 5  | "               | "       | 1/8-4/38   | 5'     | 3'       | 4'       | 8'       | 7'       | 10'    | 無      | 8'     | 30'     | 210'      | "    |
| "      | 6  | "               | "       | 1.26-4/58  | 2'     | 3'       | 4'       | 7'       | 4'       | 6'     | 甚少     | 9'     | 15'     | 212'      | "    |
| "      | 7  | "               | "       | 1.45-5/9   | 2'     | 4'       | 5'       | 9'       | 6'       | 8'     | "      | 5'     | 25'     | 204'      | 結實   |
| "      | 8  | "               | "       | 1.59-5/18  | 1'     | 2'       | 3'       | 7'       | 3'       | 3'     | "      | 6'     | 23'     | 199'      | 不實   |
| 10月13日 | 9  | 25°c.           | 60%     | 1/11-4/52  | 2'     | 4'       | 4'       | 9'       | 4'       | 7'     | "      | 5'     | 22'     | 221'      | "    |
| "      | 10 | "               | "       | 1.47-4/50  | 1'     | 3'       | 5'       | 15'      | 5'       | 12'    | "      | 8'     | 21'     | 183'      | "    |
| 平均     |    | 25.4°c.         | 61%     |            | 3'6"   | 3'18"    | 3'36"    | 7'42"    | 4'35"    | 7'30"  |        | 6'24"  | 21'36"  | 195'      | 1/10 |
| 極數     |    | 23.8°c.-30.6°c. | 57%-74% |            | 1'-5"  | 2'-4"    | 3'-5"    | 5'-15"   | 2'-7"    | 3'-12" |        | 4'-9"  | 15'-30" | 159'-221' |      |

## (D) 野稻三號 (民國二十年晚造)

| 觀察日期  | 花數 | 觀察時之平均氣溫      | 觀察時之濕度  | 開穎及閉穎之時刻      | 穎囊開裂時間 | 花絲伸長停止時間 | 花絲伸長萎垂時間 | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間  | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間  | 閉穎停止時間  | 結實固數 |
|-------|----|---------------|---------|---------------|--------|----------|----------|----------|----------|---------|--------|--------|---------|---------|------|
| 9月28日 | 1  | 31.4°C        | 75%     | 10/36'-11/22' | 不開     | 10'      | 19'      | 30'      | 9'       | 19'     | 無      | 6'     | 28'     | 46'     | 不實   |
| "     | 2  | "             | "       | 11/9'-12/10'  | 9'     | 8'       | 11'      | 33'      | 21'      | 26'     | 甚少     | 8'     | 35'     | 61'     | "    |
| "     | 3  | "             | "       | 11/25'-12/25' | 2'     | 5'       | 20'      | 28'      | 10'      | 34'     | "      | 6'     | 24'     | 60'     | "    |
| "     | 4  | "             | "       | 11/25'-12/25' | 不開     | 6'       | 20'      | 28'      | 12'      | 24'     | 無      | 6'     | 25'     | 60'     | "    |
| "     | 5  | "             | "       | 11/25'-12/25' | 4'     | 6'       | 15'      | 25'      | 12'      | 21'     | 甚少     | 5'     | 25'     | 60'     | "    |
| 10月5日 | 6  | 30.1°C        | 71%     | 11/15'-12/15' | 3'     | 2'       | 2'       | 3'       | 5'       | 12'     | 無      | 8'     | 22'     | 60'     | "    |
| "     | 7  | "             | "       | 11/16'-12/20' | 1'開4個  | 2'       | 2'       | 3'       | 6'       | 12'     | 甚少     | 7'     | 21'     | 64'     | "    |
| "     | 8  | "             | "       | 11/53'-12/40' | 2'開5個  | 1'       | 2'       | 3'       | 5'       | 13'     | 無      | 5'     | 21'     | 47'     | "    |
| "     | 9  | "             | "       | 12/9'-1/1'    | 3'開4個  | 3'       | 4'       | 5'       | 6'       | 8'      | 甚少     | 4'     | 28'     | 52'     | "    |
| "     | 10 | "             | "       | 12/10'-12/59' | 2'開2個  | 4'       | 4'       | 5'       | 7'       | 10'     | "      | 5'     | 27'     | 49'     | "    |
| 平均    |    | 30.8°C        | 73%     |               | 3'15"  | 4'42"    | 9'34"    | 16'18"   | 9'18"    | 17'-54" |        | 6'     | 26'18"  | 55'54"  | ○    |
| 極數    |    | 30.1°C-31.4°C | 71%-75% |               | 1'-9"  | 1'-10"   | 2'-20"   | 3'-33"   | 5'-21"   | 8'34"   |        | 4'-8"  | 20'-35" | 46'-64" |      |

(E) 野稻 5-15-2 號 (民國廿二年晚造)

| 觀察時日  | 花數 | 觀察時之平均氣溫 | 觀察時之濕度 | 開穎及閉穎之時刻    | 穎囊開裂時間      | 花絲伸長停止時間      | 花絲開始萎垂時間      | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間          | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間 | 閉穎停止時間 | 結實個數 |
|-------|----|----------|--------|-------------|-------------|---------------|---------------|----------|----------|-----------------|--------|--------|--------|--------|------|
| 10月2日 | 1  | 29°C.    | 72%    | 10/46-12/6  | 1' 9"       | 1' 3"         | 2' 2"         | 6'       | 少        | 2'              | 13'    | 80'    | 結實     |        |      |
| "     | 2  | "        | "      | 11/15-12/5  | 1' 9"       | 1' 2"         | 5' 一圓         | 9'       | "        | 2'              | 9'     | 50'    | "      |        |      |
| "     | 3  | "        | "      | 11/21-12/8  | 4' 6"       | 1' 2"         | 3' 一圓         | 6'       | "        | 2'              | 8'     | 47'    | 不實     |        |      |
| "     | 4  | "        | "      | 11/27-12/10 | 4' 7"       | 1' 14"        | 3' 一圓         | 6'       | "        | 2'              | 10'    | 43'    | "      |        |      |
| "     | 5  | "        | "      | 11/45-12/40 | 1' 7"       | 2' 4"         | 3' 15"        | "        | 3'       | 12'             | 55'    | 結實     |        |        |      |
| "     | 6  | "        | "      | 11/57-12/50 | 1' 8"       | 1' 4"         | 3' 一圓         | 10'      | "        | 4'              | 11'    | 53'    | "      |        |      |
| "     | 7  | "        | "      | 12/29-1/38  | 4' 5"       | 1' 3"         | 1' 5"         | "        | 4'       | 12'             | 69'    | "      |        |        |      |
| 10月6日 | 8  | 29°C.    | 72%    | 10/21-11/42 | 1' 7"       | 4' 1"         | 1' 一圓         | 5'       | "        | 2'              | 8'     | 81'    | "      |        |      |
| "     | 9  | "        | "      | 10/55-12/7  | 1' 3"       | 2' 3"         | 1' 10"        | "        | 3'       | 8'              | 72'    | "      |        |        |      |
| "     | 10 | "        | "      | 11/6-12/38  | 1' 8"       | 1' 2"         | 1' 一圓         | 4'       | "        | 2'              | 11'    | 92'    | "      |        |      |
| 平均    |    | 29°C.    | 72%    |             | 51'' 6'54'' | 1'32'' 2'33'' | 2'18'' 7'36'' |          | 2'36''   | 10'12'' 64'12'' | 8/10   |        |        |        |      |
| 極數    |    | 29°C.    | 72%    |             | 4'1'3'9"    | 4'2'1'4'      | 1'5'4'-15'    |          | 2'4'     | 8'-13'43'       | 92'    |        |        |        |      |

(F) 野稻 5-15-4 號 (民國廿二年晚造)

| 觀察日期   | 花數 | 觀察時之平均氣溫 | 觀察時之濕度 | 開穎及閉穎之時刻    | 穎囊開裂時間 | 花絲伸長停止時間 | 花絲開始萎垂時間 | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間 | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間  | 閉穎停止時間  | 結實固數 |
|--------|----|----------|--------|-------------|--------|----------|----------|----------|----------|--------|--------|--------|---------|---------|------|
| 10月11日 | 1  | 25.2°c.  | 56%    | 12/19-1/20' | 0      | 9' 3"    | 6'       | 21' 一固   | 29'      | 29'    | 多      | 6'     | 20'     | 61'     | 結實   |
| "      | 2  | "        | "      | 12/25-1/36' | 0      | 10' 2"   | 5'       | 10'      | 20'      | 20'    | "      | 5'     | 16'     | 71'     | "    |
| "      | 3  | "        | "      | 12/25-1/15' | 0      | 10' 2"   | 6'       | 10'      | 19'      | 19'    | "      | 5'     | 16'     | 50'     | "    |
| "      | 4  | "        | "      | 12/40-1/26' | 1'     | 10'      | 2'       | 7'       | 12'      | 21'    | 少      | 4'     | 16'     | 46'     | "    |
| "      | 5  | "        | "      | 12/45-1/30' | 0      | 10' 3"   | 7'       | 10' 一固   | 23'      | 23'    | 多      | 6'     | 14'     | 45'     | "    |
| "      | 6  | "        | "      | 1/2-1/45'   | 0      | 11' 1"   | 4'       | 8'       | 15'      | 15'    | "      | 5'     | 12'     | 43'     | "    |
| "      | 7  | "        | "      | 1/13-2/0'   | 0      | 9' 2"    | 5'       | 5'       | 12'      | 12'    | "      | 7'     | 14'     | 47'     | "    |
| "      | 8  | "        | "      | 1/45-2/38'  | 1'     | 10' 2"   | 4'       | 4'       | 9'       | 9'     | 少      | 4'     | 12'     | 53'     | 不實   |
| "      | 9  | "        | "      | 1/45-2/39'  | 0      | 10' 3"   | 6'       | 4'       | 10'      | 10'    | 多      | 4'     | 12'     | 54'     | 結實   |
| "      | 10 | "        | "      | 1/46-2/41'  | 1'     | 8' 3"    | 6'       | 4'       | 10'      | 10'    | 少      | 4'     | 12'     | 55'     | "    |
| 平均     |    | 25.2°c.  | 56%    |             | 18'    | 9'42"    | 2'13"    | 5'36"    | 3'43"    | 16'48" |        | 5'     | 14'24"  | 52'30"  | 9/10 |
| 極數     |    | 25.2°c.  | 56%    |             | 0-1'   | 8'-11'   | 1'-3'    | 4'-7'    | 4'-21'   | 9'-29' |        | 4'-7'  | 12'-20' | 43'-71' |      |

(G) 中山一號 (民國二十年晚造)

| 觀察時日   | 花數 | 觀察時之平均氣溫 | 觀察時之濕度 | 開穎及閉穎之時刻    | 穎囊開裂時間 | 花絲伸長停止時間 | 花絲開始萎垂時間 | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間  | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間  | 閉穎停止時間 | 結實個數  |
|--------|----|----------|--------|-------------|--------|----------|----------|----------|----------|---------|--------|--------|---------|--------|-------|
| 10月21日 | 1  | 23.1°C   | 46%    | 11-12/30    | 0      | 7'       | 4'       | 6'       | 6'       | 34'     | 多      | 5'     | 18'     | 90'    | 結實    |
| "      | 2  | "        | "      | 11/1-12/32  | 0      | 5'       | 3'       | 4'       | 不外伸      | "       | 4'     | 16'    | 91'     | "      |       |
| "      | 3  | "        | "      | 11/9-12/53  | 0      | 7'       | 6'       | 8'       | 6'       | 19'     | "      | 6'     | 26'     | 104'   | "     |
| "      | 4  | "        | "      | 11/10-1/2   | 0      | 7'       | 5'       | 6'       | 不外伸      | "       | 5'     | 26'    | 112'    | "      |       |
| "      | 5  | "        | "      | 11/21-12/53 | 0      | 8'       | 3'       | 5'       | "        | "       | 3'     | 19'    | 92'     | "      |       |
| "      | 6  | "        | "      | 11/30-1/5   | 0      | 8'       | 3'       | 4'       | "        | "       | 4'     | 22'    | 95'     | "      |       |
| "      | 7  | "        | "      | 11/30-1/8   | 0      | 9'       | 4'       | 6'       | "        | "       | 4'     | 24'    | 98'     | "      |       |
| "      | 8  | "        | "      | 11/58-1/20  | 1'     | 6'       | 3'       | 10'      | "        | "       | 4'     | 18'    | 82'     | "      |       |
| "      | 9  | "        | "      | 12/5-1/32   | 1'     | 10'      | 3'       | 11'      | 1'       | 28'     | "      | 4'     | 22'     | 87'    | "     |
| "      | 10 | "        | "      | 12/6-1/30   | 0      | 10'      | 3'       | 9'       | 不外伸      | "       | 4'     | 20'    | 84'     | "      |       |
| 平均     |    | 23.1°C   | 46%    |             | 12'    | 7'42"    | 3'24"    | 6'53"    | 1'20"    | 27'     |        | 4'18"  | 21'6"   | 93'30" | 10/10 |
| 極數     |    | 23.1°C   | 46%    |             | 0-1'   | 5'-10'   | 3'-6'    | 4'-11'   | 1'-6'    | 19'-34' |        | 3'-6"  | 16'-26" | 82-112 |       |

(H)

竹 粘

(民國二十年晚造)

| 觀察時日  | 花數 | 觀察時之平均氣溫      | 觀察時之濕度 | 開穎及閉穎之時刻      | 蒴囊開裂時間 | 花絲伸長停止時間 | 花絲開始萎垂時間     | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間 | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間  | 閉穎停止時間   | 結實個數 |
|-------|----|---------------|--------|---------------|--------|----------|--------------|----------|----------|--------|--------|--------|---------|----------|------|
| 10月1日 | 1  | 21.9°c.       | 79%    | 11/46'-1/38'  | 2'     | 5'       | 27'          | 34'      | 不外伸      |        | 多      | 14'    | 31'     | 112'     | 結實   |
| "     | 2  | "             | "      | 11/47'-1/45'  | 1'     | 4'       | 26'          | 33'      | "        |        | "      | 13'    | 30'     | 118'     | "    |
| "     | 3  | "             | "      | 12/6'-1/35'   | 0      | 不出       |              |          | "        |        | 難見     | 9'     | 24'     | 89'      | 不實   |
| "     | 4  | "             | "      | 12/40'-2/17'  | 1'     | 5'       | 10'          | 12'      | "        |        | 多      | 8'     | 19'     | 97'      | 結實   |
| "     | 5  | "             | "      | 12/49'-2/28'  | 2'     | 不出       |              |          | "        |        | "      | 13'    | 21'     | 99'      | "    |
| 10月6日 | 6  | 29.2°c.       | 70%    | 10/25'-11/6'  | 2'     | 3'       | 4'           | 10'      | "        |        | "      | 4'     | 15'     | 41'      | "    |
| "     | 7  | "             | "      | 10/50'-11/32' | 1'     | 3'       | 3'           | 10'      | 一圓微伸     |        | "      | 6'     | 15'     | 42'      | "    |
| "     | 8  | "             | "      | 11/5'-11/47'  | 1'     | 5'       | 4'           | 7'       | 不外伸      |        | "      | 6'     | 15'     | 42'      | "    |
| 10月7日 | 9  | 28.6°c.       | 77%    | 9/37'-10/28'  | 0      | 5'       | 4'           | 6'       | "        |        | "      | 4'     | 16'     | 51'      | "    |
| "     | 10 | "             | "      | 10/20'-11/12' | 0      | 7'       | 6'           | 8'       | 一圓微伸     |        | "      | 3'     | 15'     | 52'      | "    |
| 平均    |    | 25.4°c.       | 76%    |               | 1'     | 4'38"    | 10'30"       | 15'      |          |        |        | 8'     | 20'6"   | 74'18"   | 9/10 |
| 極數    |    | 21.9°-29.2°c. | 70-79% |               | 0-2'   | 3'-7'    | 3'-27'6"-34' |          |          |        |        | 3'-14' | 15'-31' | 41'-118' |      |

(I) 東莞白 (民國廿一年旱造)

| 觀察時日 | 花數 | 觀察時之平均氣溫      | 觀察時之濕度  | 開顯及閉顯之時刻   | 蒴囊開裂時間 | 花絲伸長停止時間 | 花絲開始萎垂時間 | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間 | 柱頭受粉情形 | 開顯停止時間 | 閉顯開始時間  | 閉顯停止時間  | 結實個數 |
|------|----|---------------|---------|------------|--------|----------|----------|----------|----------|--------|--------|--------|---------|---------|------|
| 7月6日 | 1  | 25.8°C        | 89%     | 9/9-10/12  | 2'     | 6'       | 8'       | 7'       | 不外伸      |        | 多      | 2'     | 24'     | 63'     | 結實   |
| 7月7日 | 2  | 28.5°C        | 76%     | 9/16-10/10 | 0      | 9'       | 1'       | 3'       | "        |        | "      | 3'     | 19'     | 54'     | "    |
| "    | 3  | "             | "       | 9/37-10/22 | 1'     | 9'       | 4'       | 10'      | "        |        | "      | 3'     | 17'     | 45'     | "    |
| 7月8日 | 4  | 29.1°C        | 77%     | 9/42-10/36 | 1'     | 9'       | 2'       | 7'       | "        |        | 少      | 2'     | 14'     | 54'     | "    |
| "    | 5  | "             | "       | 9/54-10/53 | 0      | 10'      | 3'       | 6'       | "        |        | 多      | 3'     | 16'     | 59'     | "    |
| "    | 6  | "             | "       | 10/1-10/54 | 1'     | 10'      | 3'       | 7'       | "        |        | "      | 2'     | 16'     | 53'     | "    |
| "    | 7  | "             | "       | 10/1-10/55 | 1'     | 10'      | 3'       | 7'       | "        |        | "      | 2'     | 16'     | 54'     | "    |
| "    | 8  | "             | "       | 10/2-10/55 | 0      | 10'      | 5'       | 8'       | "        |        | "      | 3'     | 16'     | 53'     | "    |
| "    | 9  | "             | "       | 10/15-11/3 | 0      | 8'       | 3'       | 5'       | "        |        | "      | 2'     | 16'     | 48'     | "    |
| "    | 10 | "             | "       | 10/20-11/7 | 1'     | 7'       | 4'       | 6'       | "        |        | "      | 3'     | 15'     | 47'     | 不實   |
| 平均   |    | 27.8°C        | 78%     |            | 42'    | 8'48"    | 3'6"     | 6'36"    |          |        |        | 2'30"  | 16'54"  | 52'12"  | 9/10 |
| 極數   |    | 25.8°C-29.1°C | 76%-89% |            | 0-2'   | 5'-10'   | 1'-5'    | 3'-10'   |          |        |        | 2'-3'  | 14'-24' | 45'-63' |      |

## (J) 白 穀 糯 (民國廿一年早造)

| 觀<br>察<br>時<br>日 | 花<br>數 | 觀察時之平均氣溫      | 觀察時之濕度  | 開穎及閉穎之時刻    | 莖葉開裂時間          | 花絲伸長停止時間 | 花絲開始萎垂時間 | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間 | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間  | 閉穎停止時間  | 結<br>實<br>個<br>數 |
|------------------|--------|---------------|---------|-------------|-----------------|----------|----------|----------|----------|--------|--------|--------|---------|---------|------------------|
| 7月6日             | 1      | 26.8°C        | 89%     | 9/42-10/53  | 3'              | 3'       | 5'       | 6'       | 不外伸      |        | 多      | 3'     | 28'     | 71'     | 結實               |
| "                | 2      | "             | "       | 9/44-10/51  | 2'              | 4'       | 3'       | 4'       | "        |        | "      | 4'     | 31'     | 67'     | 不實               |
| "                | 3      | "             | "       | 9/45-10/57  | 1'              | 3'       | 3'       | 4'       | "        |        | "      | 3'     | 31'     | 72'     | 結實               |
| "                | 4      | "             | "       | 9/45-10/44  | *10'            | 3'       | 1'       | 2'       | "        |        | 少      | 2'     | 24'     | 59'     | "                |
| "                | 5      | "             | "       | 10/44-11/35 | 1'              | 5'       | 1'       | 3'       | "        |        | "      | 2'     | 17'     | 51'     | "                |
| 7月7日             | 6      | 27.9°C        | 76%     | 8/29-9/34   | 1'              | 10'      | 3'       | 9'       | "        |        | 多      | 2'     | 20'     | 65'     | "                |
| "                | 7      | "             | "       | 8/37-9/29   | 1'              | 9'       | 2'       | 10'      | "        |        | "      | 2'     | 13'     | 52'     | "                |
| "                | 8      | "             | "       | 8/52-9/55   | 1'              | 7'       | 3'       | 6'       | "        |        | "      | 4'     | 20'     | 63'     | "                |
| "                | 9      | "             | "       | 8/54-9/37   | 2'              | 11'      | 3'       | 7'       | "        |        | 少      | 3'     | 17'     | 43'     | "                |
| "                | 10     | "             | "       | 9/3-9/56    | 1'              | 7'       | 3'       | 12'      | "        |        | "      | 5'     | 17'     | 53'     | "                |
| 平 均              |        | 27.4°C        | 83%     |             | 1'27"           | 6'12"    | 2'42"    | 6'18"    |          |        |        | 3'     | 22'48"  | 59'36"  | 9/10             |
| 極 數              |        | 26.8°C-27.9°C | 76%-89% |             | 1'-3'<br>*1-10" | 3'-11'   | 1'-5'    | 2'-12'   |          |        |        | 2'-5'  | 13'-31' | 43'-73' |                  |

(K) 九大旭一號 (民國廿一年早造)

| 觀察日期  | 花數 | 觀察時之平均氣溫      | 觀察時之濕度 | 開穎及閉穎之時刻    | 蒴垂開裂時間 | 花絲伸長停止時間 | 花絲開始萎垂時間 | 花絲完全萎垂時間 | 柱頭開展停止時間     | 柱頭外垂時間 | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間 | 閉穎停止時間 | 結實個數 |
|-------|----|---------------|--------|-------------|--------|----------|----------|----------|--------------|--------|--------|--------|--------|--------|------|
| 7月11日 | 1  | 31.2°C.       | 69%    | 10/9-11/10  | 不開     | 23'      | 10'      | 29'      | 不外伸          |        | 少      | 4'     | 25'    | 61'    | 結實   |
| "     | 2  | "             | "      | 10/12-11/15 | 2'     | 22'      | 26'      | 48'      | 8'           | 46'    | "      | 4'     | 23'    | 63'    | "    |
| "     | 3  | "             | "      | 10/59-12/4  | 1'     | 16'      | 9'       | 24'      | 11'          | 29'    | 多      | 7'     | 21'    | 65'    | "    |
| "     | 4  | "             | "      | 11/6-12/10  | 3'     | 18'      | 6'       | 23'      | 不外伸          |        | "      | 10'    | 19'    | 64'    | "    |
| "     | 5  | "             | "      | 11/7-12/12  | 1'     | 18'      | 12'      | 24'      | 9'           | 25'    | "      | 10'    | 19'    | 65'    | 不實   |
| 7月12日 | 6  | 31.3°C.       | 72%    | 9/49-10/47  | 3'     | 23'      | 16'      | 51'      | 不外伸          |        | "      | 11'    | 15'    | 58'    | 結實   |
| "     | 7  | "             | "      | 9/56-11/4   | 2'     | 20'      | 9'       | 57'      | "            |        | "      | 6'     | 17'    | 68'    | "    |
| "     | 8  | "             | "      | 10/31-11/40 | 3'     | 17'      | 7'       | 37'      | "            |        | 少      | 7'     | 23'    | 69'    | "    |
| "     | 9  | "             | "      | 10/31-11/39 | 4'     | 18'      | 7'       | 55'      | "            |        | 多      | 8'     | 26'    | 68'    | "    |
| "     | 10 | "             | "      | 10/32-11/42 | 3'     | 19'      | 9'       | 63'      | 8'           | 39'    | "      | 6'     | 25'    | 70'    | "    |
| 平均    |    | 31.2°C.       | 70.5%  |             | 2'27"  | 19'24"   | 11'6"    | 41'6"    | 9'34'4"      |        |        | 7'36"  | 21'18" | 65'6"  | 9/10 |
| 極數    |    | 31.2°-31.3°C. | 69-72% |             | 1'4"   | 16'23"   | 2'26"    | 23'63"   | 8'11'25"-46" |        |        | 4'11"  | 16'26" | 58'70" |      |

## (L) 非律賓 Canabongbong 種 (民國廿一年早造)

| 觀察日期  | 花數 | 觀察時之平均氣溫          | 觀察時之濕度      | 開穎及閉穎之時刻         | 蒴囊開裂時間              | 花絲伸長停止時間 | 花絲開始萎垂時間   | 花絲完全萎垂時間 | 柱頭開展停止時間 | 柱頭外垂時間 | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間  | 閉穎停止時間       | 結實個數 |
|-------|----|-------------------|-------------|------------------|---------------------|----------|------------|----------|----------|--------|--------|--------|---------|--------------|------|
| 7月16日 | 1  | 30.1°C            | 74%         | 10/38'-<br>12/1' | 1' 15"              | 24' 54"  | 不外伸        |          |          |        | 多      | 3'     | 27'     | 83'          | 結實   |
| "     | 2  | "                 | "           | 10/45'-<br>12/5' | 0'                  | 18' 16"  | 41"        | "        | "        | "      | "      | 4'     | 33'     | 80'          | "    |
| "     | 3  | "                 | "           | 10/50'-<br>12/3' | 1'                  | 14' 16"  | 22"        | "        | "        | "      | "      | 5'     | 24'     | 73'          | "    |
| 7月17日 | 4  | 28.8°C            | 91%         | 9/31'-<br>11/4'  | 1'                  | 15' 8"   | 16"        | "        | "        | "      | 少      | 2'     | 17'     | 93'          | "    |
| "     | 5  | "                 | "           | 9/47'-<br>11/40' | *6'                 | 23' 19"  | 28"        | "        | "        | "      | "      | 2'     | 35'     | 113'         | "    |
| "     | 6  | "                 | "           | 10-<br>11/36'    | 0'                  | 23' 15"  | 34"        | "        | "        | "      | "      | 7'     | 30'     | 96'          | 不實   |
| 7月18日 | 7  | 30.7°C            | 74%         | 9/43'-<br>11/16' | 1'                  | 9' 3"    | 24"        | "        | "        | "      | 多      | 2'     | 24'     | 93'          | "    |
| "     | 8  | "                 | "           | 9/46'-<br>11/11' | 不開                  | 5' 4"    | 7"         | "        | "        | "      | 少      | 3'     | 19'     | 85'          | 結實   |
| "     | 9  | "                 | "           | 9/53'-<br>11/11' | "                   | 11' 2"   | 12"        | "        | "        | "      | "      | 2'     | 15'     | 78'          | "    |
| "     | 10 | "                 | "           | 9/57'-<br>11/5'  | 1'                  | 5' 4"    | 9"         | "        | "        | "      | "      | 3'     | 14'     | 68'          | 枯    |
| 平均    |    | 30°C              | 80%         |                  | 12'-<br>13'<br>48"  | 11'6"    | 24'<br>42" |          |          |        |        | 3'18"  | 23'48"  | 86'12"       | 8/10 |
| 極數    |    | 28.8°C-<br>30.7°C | 74%-<br>91% |                  | 0-1'5"-<br>*(6')23" | 2'-24'   | 7.5'       |          |          |        |        | 2'-7'  | 14'-35' | 68'-<br>113' |      |

(M) 菲律賓 Pinulot 種 (民國廿一年早造)

| 觀察日期  | 花數 | 觀察時之平均氣溫          | 觀察時之濕度      | 開穎及閉穎之時刻      | 結囊開穎時間 | 花絲伸長停止時間     | 花絲開始萎垂時間    | 花絲完全萎垂時間     | 柱頭開展停止時間 | 柱頭外垂時間 | 柱頭受粉情形 | 開穎停止時間 | 閉穎開始時間   | 閉穎停止時間       | 結實個數 |
|-------|----|-------------------|-------------|---------------|--------|--------------|-------------|--------------|----------|--------|--------|--------|----------|--------------|------|
| 7月18日 | 1  | 30.7°C            | 74%         | 8/55'-11/24'  | *不開    | 22'          | 20'         | 42'          | 不外伸      |        | 無      | 10'    | 20'      | 90'          | 不實   |
| "     | 2  | "                 | "           | 9/8'-10/38'   | "      | 11'          | 9'          | 14'          | "        |        | 少      | 4'     | 21'      | 149'         | 結實   |
| "     | 3  | "                 | "           | 9/24'-11/38'  | "      | 16'          | 15'         | 21'          | "        |        | "      | 10'    | 18'      | 138'         | "    |
| "     | 4  | "                 | "           | 9/27'-11/45'  | "      | 11'          | 8'          | 11'          | "        |        | 無      | 8'     | 18'      | 135'         | 不實   |
| "     | 5  | "                 | "           | 9/29'-10/44'  | 9'     | 24'          | 25'         | 36'          | "        |        | 少      | 6'     | 15'      | 75'          | 結實   |
| "     | 6  | "                 | "           | 10/11'-11/36' | 9'     | 14'          | 13'         | 25'          | "        |        | 多      | 10'    | 23'      | 85'          | "    |
| 7月19日 | 7  | 27.4°C            | 88%         | 8/30'-11/20'  | *不開    | 42'          | 23'         | 50'          | "        |        | 無      | 6'     | 35'      | 170'         | 不實   |
| "     | 8  | "                 | "           | 8/34'-10/4'   | "      | 31'          | 7'          | 41'          | "        |        | "      | 5'     | 26'      | 90'          | "    |
| "     | 9  | "                 | "           | 8/40'-10/23'  | "      | 38'          | 7'          | 41'          | "        |        | 少      | 4'     | 30'      | 103'         | 結實   |
| "     | 10 | "                 | "           | 8/54'-10/38'  | "      | 28'          | 7'          | 31'          | "        |        | 無      | 6'     | 25'      | 104'         | 不實   |
| 平均    |    | 29°C              | 81%         |               | 9'     | 23'<br>42''  | 13'<br>24'' | 31'<br>12''  |          |        |        | 8'54'' | 23'6''   | 113'<br>54'' | 5/10 |
| 極數    |    | 27.4°C-<br>30.7°C | 74%-<br>88% |               | 9'     | 11'-<br>42'' | 7'-<br>25'' | 11'-<br>50'' |          |        |        | 4'40'' | 15'-35'' | 75'-<br>170' |      |

| 品 種                         | 平均<br>數與極<br>數 | 觀<br>察<br>時<br>之<br>氣<br>溫 | 觀<br>察<br>時<br>之<br>濕<br>度 | 穎<br>之<br>開<br>裂<br>時<br>間 | 花<br>絲<br>伸<br>長<br>停<br>止<br>時<br>間 | 花<br>絲<br>開<br>始<br>萎<br>垂<br>時<br>間 | 花<br>絲<br>完<br>全<br>萎<br>垂<br>時<br>間 | 柱<br>頭<br>開<br>展<br>停<br>止<br>時<br>間 | 柱<br>頭<br>外<br>垂<br>時<br>間 | 柱<br>頭<br>受<br>粉<br>之<br>花<br>數 | 柱<br>頭<br>受<br>粉<br>量 | 開<br>穎<br>停<br>止<br>時<br>間 | 閉<br>穎<br>開<br>始<br>時<br>間 | 閉<br>穎<br>停<br>止<br>時<br>間 | 結<br>實<br>數 |
|-----------------------------|----------------|----------------------------|----------------------------|----------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------|---------------------------------|-----------------------|----------------------------|----------------------------|----------------------------|-------------|
| 石牌野稻                        | 平均             | 26.05°C.                   | 68%                        | 1'18"                      | 9'6"                                 | 1'                                   | 2'                                   | 1'                                   | 2'3"                       | 10/10                           | 少                     | 2'12"                      | 18'48"                     | 114'36"                    | 7/10        |
|                             | 極數             | 26°-<br>26.1°C.            | 63-<br>73%                 | 0'-2'                      | 7'-11'                               | 1'                                   | 2'                                   | 1'                                   | 1'-3'                      |                                 |                       | 2'-3'                      | 9'-23'                     | 103'-<br>131'              |             |
| 清遠鶴川<br>野 稻                 | 平均             | 25.6°C.                    | 55%                        | 36'                        | 14'                                  | 1'                                   | 1'42"                                | 3'                                   | 7'                         | 10/10                           | 少                     | 4'42"                      | 25'                        | 80'42"                     | 5/10        |
|                             | 極數             | 24.8°-<br>26.4°C.          | 53-<br>57%                 | 4'-1'                      | 11'18"                               | 1'                                   | 1'-2'                                | 1'-6'                                | 4'-11'                     |                                 |                       | 3'-7'                      | 21'-29'                    | 40'-<br>104'               |             |
| 犀牛尾<br>野 稻                  | 平均             | 25.4°C.                    | 61%                        | 3'6"                       | 3'18"                                | 3'36"                                | 7'42"                                | 4'36"                                | 7'30"                      | 6/10                            | 甚少                    | 6'24"                      | 21'36"                     | 195'                       | 1/10        |
|                             | 極數             | 23.8°-<br>30.6°C.          | 57-<br>74%                 | 1'-5'                      | 2'-4'                                | 3'-5'                                | 5'-15'                               | 2'-7'                                | 3'-14'                     |                                 |                       | 4'-9'                      | 15'-30'                    | 159'-<br>221'              |             |
| 野稻三號                        | 平均             | 30.8°C.                    | 73%                        | 3'15"                      | 4'42"                                | 9'54"                                | 16'18"                               | 9'18"                                | 17'54"                     | 6/10                            | 甚少                    | 6'                         | 26'18"                     | 55'54"                     | 不實          |
|                             | 極數             | 30.1°-<br>31.4°C.          | 71-<br>75%                 | 1'-9"                      | 1'-10"                               | 2'-20"                               | 3'-33"                               | 5'-21"                               | 8'-34"                     |                                 |                       | 4'-8"                      | 20'-35"                    | 46'-64"                    |             |
| 野 稻<br>5-15-2               | 平均             | 29°C.                      | 72%                        | 51"                        | 6'54"                                | 1'12"                                | 2'33"                                | 2'18"                                | 7'36"                      | 10/10                           | 少                     | 2'36"                      | 10'12"                     | 64'12"                     | 8/10        |
|                             | 極數             | 29°C.                      | 72%                        | 4'-1'                      | 3'-9'                                | 4'-2'                                | 1'-4'                                | 1'-5'                                | 4'-15'                     |                                 |                       | 2'-4'                      | 8'-13'                     | 43'-92"                    |             |
| 野 稻<br>5-15-4               | 平均             | 25.2°C.                    | 56%                        | 18"                        | 9'42"                                | 2'18"                                | 5'36"                                | 8'48"                                | 16'48"                     | 10/10                           | 多                     | 5'                         | 14'24"                     | 52'30"                     | 9/10        |
|                             | 極數             | 25.2°C.                    | 56%                        | 0'-1'                      | 8'-11'                               | 1'-3'                                | 4'-7'                                | 4'-21'                               | 9'-29"                     |                                 |                       | 4'-7'                      | 12'-20"                    | 43'-71'                    |             |
| 中山一號                        | 平均             | 23.1°C.                    | 46%                        | 12"                        | 7'42"                                | 3'42"                                | 6'54"                                | 4'20"                                | 27'                        | 10/10                           | 多                     | 4'18"                      | 21'6"                      | 93'30"                     | 10/10       |
|                             | 極數             | 23.1°C.                    | 46%                        | 0'-1'                      | 5'-10'                               | 3'-6'                                | 4'-11'                               | 1'-6'                                | 19'-34"                    |                                 |                       | 3'-6'                      | 16'-26'                    | 82'-<br>112'               |             |
| 竹 粘                         | 平均             | 25.4°C.                    | 76%                        | 1'                         | 4'38"                                | 10'30"                               | 15"                                  |                                      |                            | 9/10                            | 多                     | 8'                         | 20'6"                      | 74'18"                     | 9/10        |
|                             | 極數             | 21.9°-<br>29.2°C.          | 70-<br>79%                 | 0'-2'                      | 3'-7'                                | 3'-27"                               | 6'-34"                               |                                      |                            |                                 |                       | 3'-14'                     | 15'-31'                    | 41'-<br>118"               |             |
| 東 莞 白                       | 平均             | 27.8°C.                    | 78%                        | 42"                        | 8'48"                                | 3'6"                                 | 6'36"                                |                                      |                            | 10/10                           | 多                     | 2'30"                      | 16'54"                     | 53'12"                     | 9/10        |
|                             | 極數             | 25.8°-<br>29.1°C.          | 76-<br>89%                 | 0'-2'                      | 6'-10'                               | 1'-5'                                | 3'-10"                               |                                      |                            |                                 |                       | 2'-3'                      | 14'-24"                    | 45'-63"                    |             |
| 白 殼 糯                       | 平均             | 27.4°C.                    | 83%                        | 1'27"                      | 6'12"                                | 2'42"                                | 6'18"                                |                                      |                            | 10/10                           | 多                     | 3'                         | 22'48"                     | 59'36"                     | 9/10        |
|                             | 極數             | 26.8°-<br>27.9°C.          | 76-<br>89%                 | 1'-3'<br>*(-10)            | 3'-11'                               | 1'-5'                                | 2'-12"                               |                                      |                            |                                 |                       | 2'-5'                      | 13'-31'                    | 43'-73"                    |             |
| 九大旭一號<br>(日本種)              | 平均             | 31.2°C.                    | 70%                        | 2'27"                      | 19'24"                               | 11'6"                                | 41'6"                                | 9'                                   | 34'4"                      | 10/10                           | 多                     | 7'36"                      | 21'18"                     | 65'6"                      | 9/10        |
|                             | 極數             | 31.2°-<br>31.3°C.          | 69-<br>72%                 | 1'-4'                      | 16'-23'6"-26'                        | 23'-63'                              | 8'-11'                               | 25'-46"                              |                            |                                 |                       | 4'-11'                     | 16'-26'                    | 58'-70'                    |             |
| Canabong-<br>bong<br>(菲律賓種) | 平均             | 30°C.                      | 80%                        | 42"                        | 13'48"                               | 11'6"                                | 24'42"                               |                                      |                            | 10/10                           | 少                     | 3'18"                      | 23'48"                     | 86'12"                     | 8/10        |
|                             | 極數             | 28.8°-<br>30.7°C.          | 74-<br>91%                 | 0'-1'<br>*(-6)             | 5'-23'                               | 2'-24"                               | 7'-54"                               |                                      |                            |                                 |                       | 2'-7'                      | 14'-35"                    | 68'-113'                   |             |
| Pinutot<br>(菲律賓種)           | 平均             | 29°C.                      | 81%                        | 9'                         | 23'42"                               | 13'24"                               | 31'12"                               |                                      |                            | 5/10                            | 少                     | 6'54"                      | 23'6"                      | 113'54"                    | 5/10        |
|                             | 極數             | 27.4°-<br>30.7°C.          | 74-<br>88%                 | 9'                         | 11'-42"                              | 7'-25"                               | 11'-50"                              |                                      |                            |                                 |                       | 4'-10"                     | 15'-35"                    | 75'-<br>170"               |             |

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LIN, LIANG-TUNG and TING, YING



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