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벼 건·습답골직파 재배시 잡초발생양상 및 방제체계

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Weed Occurrence Pattern and Weed Control System in Dry and Wet Furrow Direct Seeding Rice Culture

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실험목적

전북농업기술원에서 개발된 건·습답골직파를 이용한 벼 직파재배에서의 잡초발생양상과 효과적인 제초체계를 확립하고자 함.

재료 및 방법

(시험1) 재배양식별 잡초발생양상

- 시험품종 : 남평벼
- 재배양식(파종 및 이앙시기) : 건답골직파 및 건답직파(5월5일), 습답골직파 및 답수표면산파(5월14일), 이앙재배(5월30일)

(시험2) 벼 건·습답골직파 재배시 잡초방제체계

- 시험품종 : 남평벼
- 처리약제
 - 건답골직파 : Paraquat dichloride+ Butachlor fb Cyclosulfamuron/fentrazamide (벼 출현직전 fb 답수후 10일) 등 4처리
 - 습답골직파 : Dimepiperate/ bensulfuron-methyl fb Bentazon(파종후 10일 fb 파종후 45일) 등 3처리

실험결과

- 재배양식별 잡초발생 본수는 벼 생육초기에는 건답직파>건답골직파>답수직파>습답골직파>이앙재배 순이었으나, 생육후기에는 건답직파>답수직파>건답골직파>습답골직파>이앙재배 순이었다.
- 건답골직파 재배시 제초제 체계처리에 의한 잡초방제효과는 1차제초제로 벼 출현직전에 Paraquat dichloride+ Butachlor를 처리한후 2차제초제로 Cyclosulfamuron /fentrazamide(답수 후 10일) 또는 Cyhalofop-butyl/bentazon(답수후 25일)을 체계처리 하면 각각 94.4%, 95.6% 수준의 높은 제초효과를 얻을 수 있었으며, 또한 1차제초제로 피3.0엽기에 Pyribenzoxim을 처리 한후 2차제초제로 Cyclosulfamuron/fentrazamide(답수후 10일) 또는 Cyhalofop-butyl/bentazon (답수후 25일)의 체계처리에서도 각각 92.6%, 96.2% 수준으로 제초효과가 양호하였다.
- 습답골직파 재배시 제초제 체계처리에 의한 잡초방제효과는 Dimepiperate /bensulfuron-methyl fb Bentazon(파종후 10일 fb 파종후 45일), Thiobencarb fb Cyhalofop-butyl/bentazon(파종후 10일 fb 파종후 45일) Pyrazosulfuron-ethyl /mefenacet fb Benfuresate/bensulfuron-methyl(파종후 15일 fb 파종후 35일) 체계처리에서 각각 92.6%, 95.1%, 91.6% 수준으로 제초효과가 높았다.

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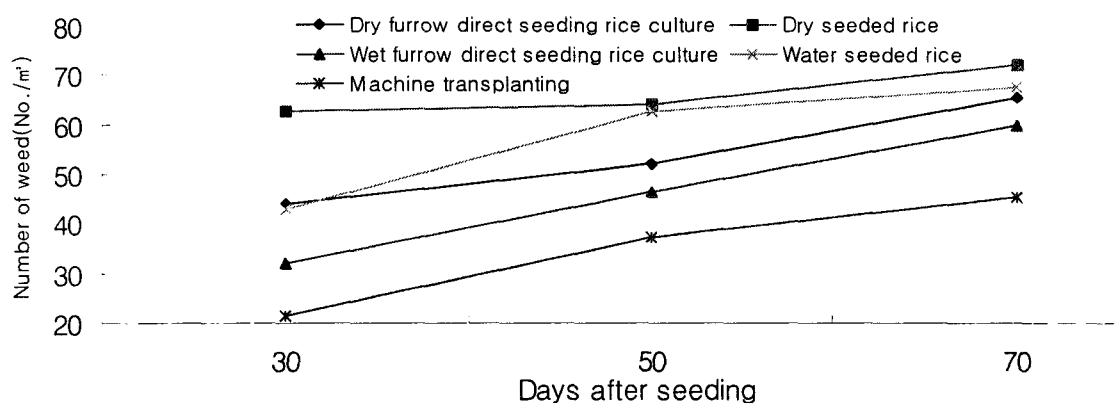


Fig1. The number of weed in different cultivation types of rice

Table 1. Weeding efficacy as affected by various herbicides application system in dry furrow direct seeding rice culture.

| Herbicide | Weeding efficacy(%) | | | Phytotoxicity ⁷⁾ (0~9) | | Yield (kg/10a) | Yield index |
|------------------------|---------------------|-----------------|------------------------|-----------------------------------|-----|---------------------|-------------|
| | Annual weeds | Perennial weeds | Total | 1st | 2nd | | |
| P+B fb C ¹⁾ | 94.3 | 93.0 | 94.4 a ⁵⁾ | 1 | 0 | 518 a ⁵⁾ | 99 |
| P+B fb C ²⁾ | 96.0 | 93.5 | 95.6 a | 1 | 0 | 522 a | 100 |
| P fb C ³⁾ | 92.7 | 91.5 | 92.6 a | 1 | 0 | 510 a | 98 |
| P fb C ⁴⁾ | 96.5 | 94.5 | 96.2 a | 1 | 0 | 515 a | 99 |
| Hand weeding | - | - | - | - | - | 521 a | 100 |
| Untreated control | - | - | (297.2 ⁶⁾ b | - | - | 236 b | 40 |

1) Paraquat dichloride + Butachlor fb Cyclosulfamuron/fentrazamide

2) Paraquat dichloride + Butachlor fb Cyhalofop-buthyl/bentazon

3) Pyribenzoxim fb Cyclosulfamuron/fentrazamide

4) Pyribenzoxim fb Cyhalofop-buthyl/bentazon

5) Mean separation by Duncan' s multiple range test at the 5% level, 6) Dry weight(g/m²)

7) Investigated time : 10 Days after herbicide application

Table 2. Weeding efficacy as affected by various herbicides application system in wet furrow direct seeding rice culture

| Herbicide | Weeding efficacy(%) | | | Phytotoxicity ⁶⁾ (0~9) | | Yield (kg/10a) | Yield index |
|----------------------|---------------------|-----------------|------------------------|-----------------------------------|-----|---------------------|-------------|
| | Annual weeds | Perennial weeds | Total | 1st | 2nd | | |
| D fb B ¹⁾ | 92.4 | 93.7 | 92.6 a ⁴⁾ | 0 | 0 | 498 a ⁴⁾ | 98 |
| T fb C ²⁾ | 95.7 | 91.5 | 95.1 a | 0 | 0 | 499 a | 98 |
| P fb B ³⁾ | 91.5 | 92.0 | 91.6 a | 0 | 0 | 512 a | 101 |
| Hand weeding | - | - | - | - | - | 507 a | 100 |
| Untreated control | - | - | (269.6 ⁵⁾ b | - | - | 256 b | 51 |

1) Dimepiperate /bensulfuron-methyl fb Bentazon

2) Thiobencarb fb Cyhalofop-butyl/bentazon

3) Pyrazosulfuron-ethyl /mefenacet fb Benfuresate/bensulfuron-methyl

4) Mean separation by Duncan' s multiple range test at the 5% level, 5) Dry weight(g/m²)

6) Investigated time : 10 Days after herbicide application